the Journal MICHIGAN STATE MEDICAL SOCIETY

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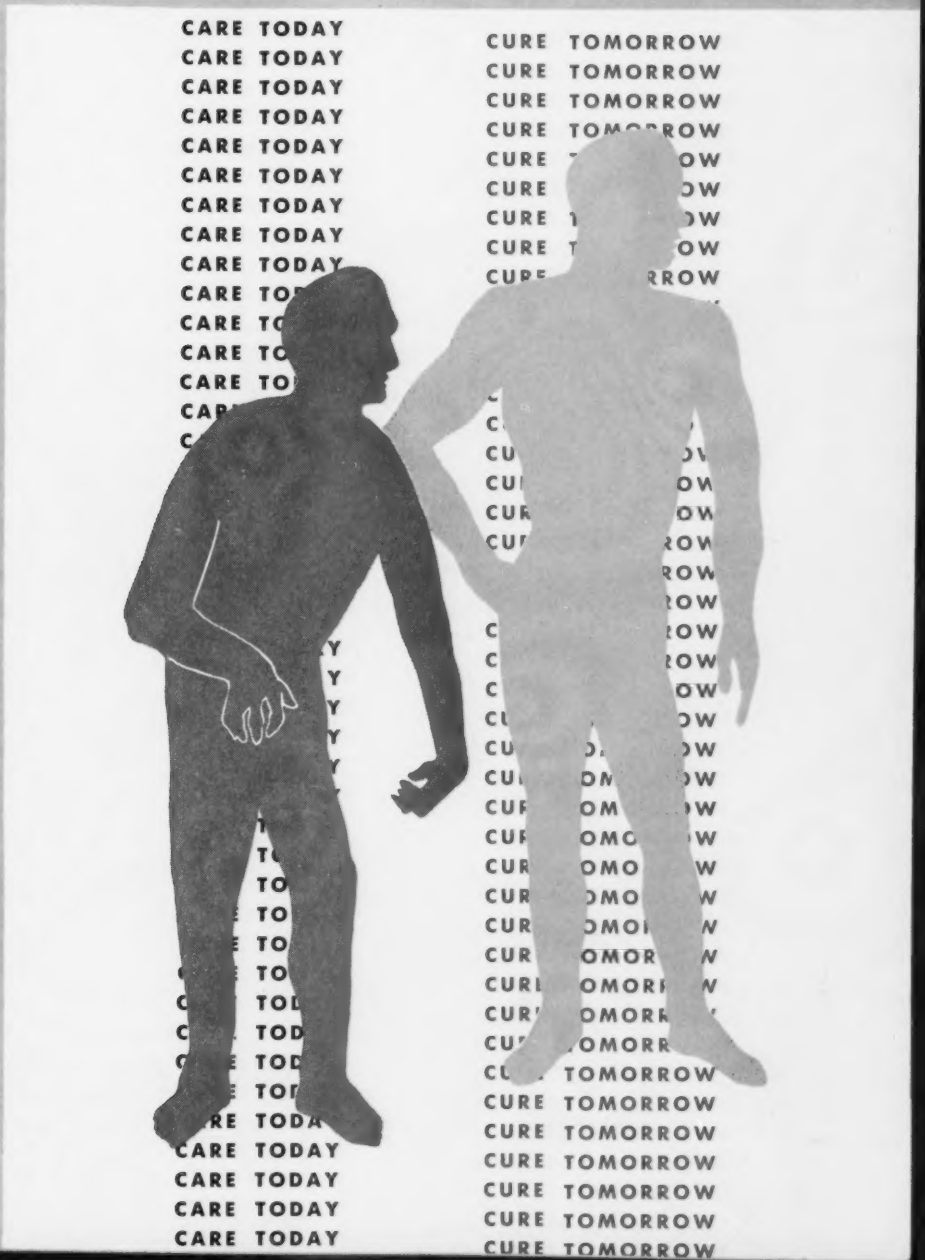

In This Number

Arthritis Articles

MSMS Annual Reports

This number is composed of two sections, of which this is Section 1.

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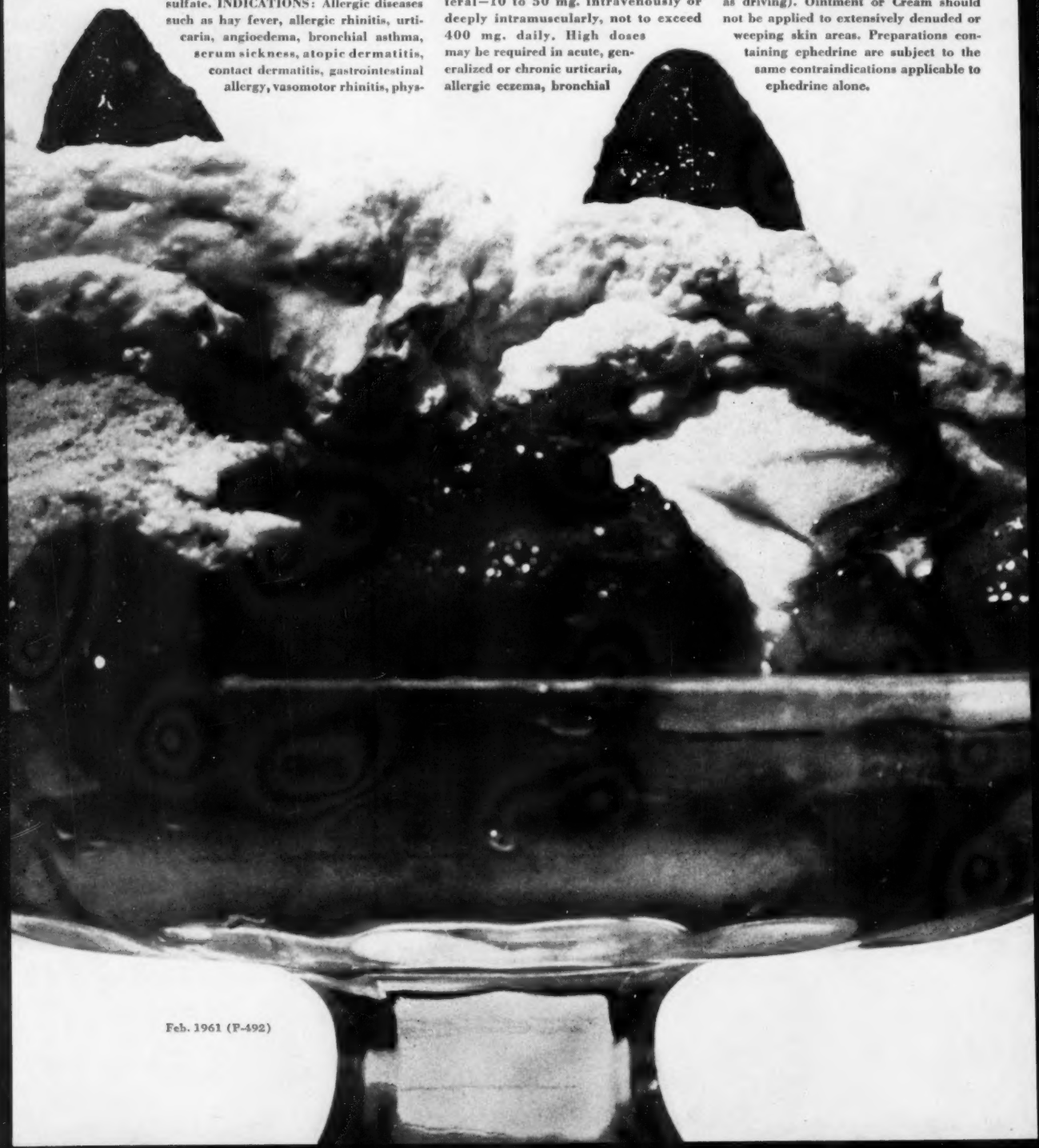

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March, 1961

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THE COVER

This number of THE JOURNAL is dedicated to the care of and the hope for arthritic patients. In addition to the excellent scientific articles, your attention is directed to the President's Page.

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President's Page

SUCCESSFUL CARE OF ARTHRITIS

It is not often that your President chooses to discuss a clinical subject, even briefly, since these matters are so much better handled by others. I should like this time, however, to call your very special attention to the subject of this number of THE JOURNAL which is dedicated to "Arthritis."

It would be quite ridiculous to suggest that this condition is the "No. 1 Enemy" defying medical practice to solve. There are so many. But I am sure that each of us has been aware, in one way or another, of the challenge to our best efforts which this crippling "disease" presents.

I am personally mindful of those patients I see, who are rigidly restrained from living even the semblance of a normal life due to this affliction. Fortunate are they indeed if they have families and friends to minister to their needs. Even so, their lives are circumscribed to the point of utter helplessness in part or completely.

There seems no other situation which requires such a degree of patience on the part of the physician. Patience which offers hope, but not too much hope. Patience which offers friendship, as well as medical know-how. Patience which is able to delineate for the victim those ideas which may help from those which are only a waste of his time, energy, and money.

I can recall driving several miles, as a young physician, to bring diathermy to a bed-ridden arthritic patient. In the light of present knowledge, it was a wasted effort, but then it was the thing to do. The advent of the steroids seemed to offer a panacea, but now we know the limitations as well as the advantages of this form of treatment. How often are we faced with the problem of gently telling a sufferer—"No, I do not believe that sitting in an underground cave where radio-activity is supposed to abound will cure your affliction," or some similar miraculous notion.

Above all, I suggest that the role of the physician in caring for this "disease" is one of courageous effort and friendly assistance salted with a dash of healthy skepticism. At present, such an approach offers the best chance for successful care.

Kenneth H. Hudson

Dedication Set June 4

Preliminary plans have been started for the dedication program of the new MSMS Headquarters Building Sunday, June 4, at 3:00 p.m.

All members of MSMS and their ladies are invited to attend the event, with special invitations extended to the members of the MSMS House of Delegates and The MSMS Council.

"Every member can be proud of the new headquarters as the functional center for health activities in Michigan," points out Kenneth H. Johnson, M.D., MSMS President.

* * *

PLANS FOR THE DEDICATION were approved at the annual meeting of The Council and now are being implemented by the Big Look Committee, The Council and MSMS officers.

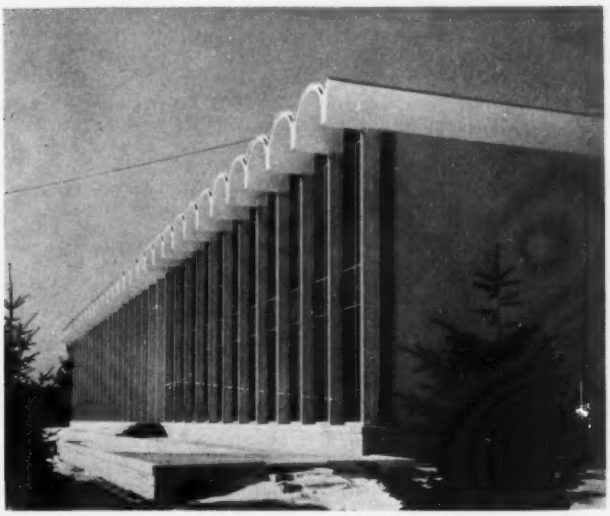
While the June 4 official dedication program for MSMS members will be the major event, several other open-house programs are being arranged for leaders in government, the health field, community affairs, and for other groups.

Many presidents, secretaries and leaders of component medical societies toured the Headquarters building during the annual County Secretaries-Public Relations Seminar. Since then, workmen have completed the interior work.

The MSMS staff expects to move its operation to the new Headquarters in April.

* * *

ALL MEMBERS ARE cordially invited to visit the new Headquarters anytime after the move has been completed so they may inspect the functional design of the building and the efficient arrangement of conference rooms, offices, production room and other facilities.



Annual County Secretaries Public Relations Seminar

The Annual County Secretaries' Public Relations Seminar which was held in East Lansing, January 23 and 29, 1961, had a total registration of 138. Those present included:

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Participants on Program.—Senator Frank D. Beadle (St. Clair), Hugh W. Brenneman (Lansing), Lester P. Dodd, LL.B. (Detroit), Otto K. Engelke, M.D. (Ann Arbor), H. F. Falls, M.D. (Ann Arbor), R. A. Frary, M.D. (Monroe), H. A. Howes, M.D. (Detroit), K. H. Johnson, M.D. (Lansing), J. J. Lightbody, M.D. (Detroit), W. J. Maxey (Lansing), Professor Walter McNerney (Ann Arbor), H. J. Meier, M.D. (Coldwater), J. A. Read, M.D. (Birmingham), J. B. Rowe, M.D. (Flint), F. C. Swartz, M.D. (Lansing), R. Wallace Teed, M.D. (Ann Arbor), H. C. Tellman, M.D. (Muskegon), D. B. Varner, Ph.D. (Rochester, Michigan), D. Bruce Wiley, M.D. (Utica), F. M. Woolsey, Jr. (Albany, N. Y.), Jean Worth (Escanaba).

Guests.—John A. Doherty, M.D. (East Lansing), Duane Drake (Detroit), Juanita Ferman (Jackson), Wm. C. Fritz (Lansing), Joseph D. Miller (Chicago, Ill.), Dr. and Mrs. R. L. Novy (Detroit), R. V. Taylor, M.D. (Jackson), A. H. Veldhuis, M.D. (Mt. Pleasant), Marguerite M. Vergosen (Detroit), David Wilson (Detroit).

MICHIGAN MEDICAL MEETINGS AND CLINIC DAYS

April 6	Ingham County Clinic Day	Jack Tar Hotel, Lansing
April 26-29	American College Health Association	Detroit
April 27-29	American Academy of Neurology	Sheraton-Cadillac Hotel, Detroit
May 3	Wayne State University Alumni Clinic Day and Reunion	Fort Shelby Hotel, Detroit
May 23-25	Michigan Health Council State Conference	Ballengar Field House, Flint Community College, Flint
June 4	Dedication of New MSMS Headquarters	East Lansing
June 16-17	Upper Peninsula Medical Society	Menominee
June 19-21	University of Michigan Conference on Aging	Ann Arbor
July 27-28	Coller-Penberthy Clinic	Park Place Hotel, Traverse City

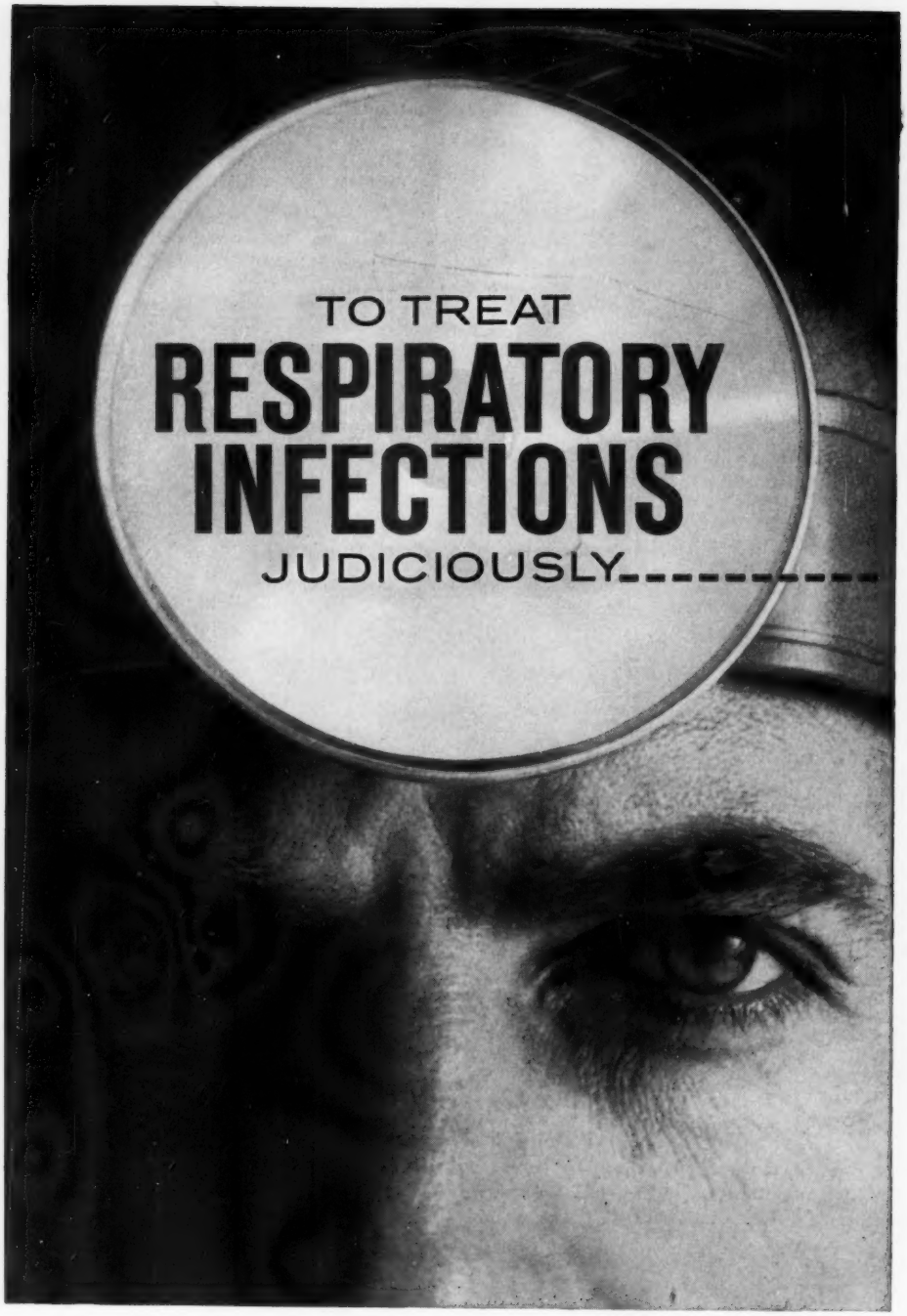
RECORD OF ATTENDANCE AT MSMS COUNTY SECRETARIES-PUBLIC RELATIONS SEMINAR

X Present
O Absent
N None

January 28-29, 1961

County or District Medical Society	*Pres.*	*Pres. Elect*	*Secy.*	*County P.R. Chairman*	*Editor*	*MSMS Councilor*	*MSMS P.R. Committee*	*Exec. Secy.*
Allegan	X	O	X	O	X	N	N	N
Alpena-Alcona-Presque Isle	O	O	X	O	N	N	O	N
Barry	X	N	X	O	N	N	O	N
Bay-Arenac-Iosco	X	O	X	X	O	X	X	N
Berrien	O	O	X	O	O	N	N	N
Branch	O	N	O	N	O	X	N	N
Calhoun	O	O	O	O	O	N	O	N
Cass	O	N	O	N	N	N	N	N
Chippewa-Mackinac	O	O	O	N	N	N	O	N
Clinton	O	O	O	O	N	N	O	N
Delta-Schoolcraft	O	O	X	N	N	X	O	N
Dickinson-Iron	O	X	X	O	N	N	N	N
Eaton	O	O	O	N	N	N	N	N
Genesee	X	X	X	O	X	X	XXX	X
Gogebic	O	O	O	N	N	N	N	N
Grand Traverse-Leelanau-Benzie	O	O	X	X	O	N	N	N
Gratiot-Isabella-Clare	O	N	O	N	N	X	X	N
Hillsdale	O	O	O	N	N	N	N	N
Houghton-Baraga-Keweenaw	O	O	O	O	N	O	O	N
Huron	O	O	O	O	N	N	N	N
Ingham	X	X	X	X	X	XX	X	X
Ionia-Montcalm	X	X	O	O	N	N	N	N
Jackson	X	O	X	X	N	N	N	N
Kalamazoo	X	X	X	X	O	X	X	X
Kent	X	X	X	O	O	X	OOO	X
Lapeer	O	N	O	O	N	N	N	N
Lenawee	O	O	X	O	O	N	N	N
Livingston	O	O	X	X	N	N	O	N
Luce	O	O	O	O	N	N	N	N
Macomb	X	O	O	O	N	X	X	N
Manistee	O	O	O	O	O	N	N	N
Marquette-Alger	O	X	X	O	N	N	X	N
Mason	O	N	O	N	N	N	N	N
Mecosta-Osceola	O	O	O	X	N	N	N	N
Menominee	O	O	X	X	N	N	N	N
Midland	O	O	O	O	N	N	N	N
Monroe	O	X	X	X	N	N	X	N
Muskegon	X	X	X	X	O	X	O	X
Newaygo	O	O	O	O	N	N	N	N
North Central	O	O	O	N	N	N	N	N
Northern Michigan	O	O	X	N	N	N	X	N
Oakland	O	X	X	X	O	O	O	X
Oceana	O	N	O	N	N	N	N	N
Ontonagon	O	O	O	O	O	N	O	N
Ottawa	O	O	O	N	N	N	N	N
Saginaw	O	O	O	O	O	O	O	O
St. Clair	X	X	X	X	O	X	N	N
St. Joseph	O	O	X	X	N	N	X	N
Sanilac	O	O	O	O	N	N	N	N
Shiawasee	O	O	O	O	N	N	X	N
Tuscola	X	O	O	N	N	O	N	N
Van Buren	O	O	X	N	N	N	N	N
Washtenaw	X	X	O	X	O	XX	XX	O
Wayne	O	X	X	X	O	XXXX	XX	X
Wexford-Missaukee	O	O	O	N	N	X	N	N

Others present at the Seminar were: Woman's Auxiliary representatives, 3; Michigan State Medical Assistants Society representatives, 4; Michigan Medical Service representatives, 3; Michigan Hospital Service representatives, 2; Program Participants, 21; guests, 11.



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Literature on request

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prompt relief
profound relief
prolonged relief

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AVERAGE ADULT DOSE: 1 tablet every 6 hours. May be habit forming. Federal law permits oral prescription.

Each PERCODAN* Tablet contains 4.50 mg. dihydrohydroxycodeinone hydrochloride, 0.38 mg. dihydrohydroxycodeinone terephthalate, 0.38 mg. homatropine terephthalate, 224 mg. acetylsalicylic acid, 160 mg. acetophenetidin, and 32 mg. caffeine.

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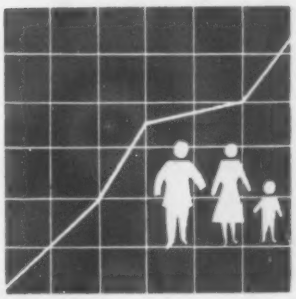
LITERATURE AVAILABLE ON REQUEST

Endo

ENDO LABORATORIES
Richmond Hill 18, New York

*U.S. Patent Nos. 2,628,185 and 2,907,768

Real Cost of Medical Care Lower than 20 Years Ago



The real cost of medical care, in terms of hours of work to purchase it, is less today than it was 20 years ago. This is the conclusion of the American Medical Association's Economic Research Department, based on data from the Bureau of Labor Statistics.

"The time that a factory employee worked in 1959 to purchase a given 'market basket' of medical care was only 61 per cent of the amount of time required in 1939, a decrease of 39 per cent," the AMA reported.

To pay for physicians' services required only 55 per cent as much working time in 1959 as in 1939. In 1959, a worker could earn the money to pay for a constant quantity of surgeons' services in less than half the time required in 1939, the AMA said.

Only one part of medical care—hospital rates—required more working time to cover the increased cost. The factory worker in 1959 put in 122 per cent of the time worked in 1939, in order to purchase the same quantity of hospital services.

The AMA pointed out, however, that qualitative changes in medical practices have resulted in shortened periods of hospitalization. Two examples are cited—20 years ago the average length of stay for a hemorrhoidectomy was 19.6 days, whereas today it is 7.6 days, and the average length of stay for an appendectomy was 13.5 days, whereas, today it is only 6.7 days.

"Included in this decrease of real cost of medical care is the higher quality of today's service," the AMA said. "Research and progress have produced drugs, technological instruments and improved methods in the management of disease which were non-existent 20 years ago."

* * *

AMA Washington Statement About Kennedy Health Plan

"President Kennedy's sweeping health program, tied to an increase in social security taxes to finance medical care for elderly persons, faces strong opposition in Congress.

"The consensus of Capitol Hill observers was that it stood a 50-50 chance of getting Congressional approval but not before it had been cut down. There were some who doubted that the Administration's program for medical care of the aged would be acted upon, at least by both houses of Congress before next year.

"Even some Democratic Congressmen with the liberal label were taken aback by the scope of Kennedy's health program."

Each of the babies pictured on this page was borne by a mother with a *documented* previous history of true habitual abortion, who was treated with DELALUTIN during the pregnancy leading to this birth

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SQUIBB HYDROXYPROGESTERONE CAPROATE

Improved Progestational Therapy

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Denver, Colo.

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Hartford, Conn.

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• long-acting sustained therapy • more effective in producing and maintaining a completely matured secretory endometrium • no androgenic effect • more concentrated solution requiring injection of less vehicle • unusually well-tolerated, even in large doses • fewer injections required • low viscosity makes administration easy

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Aristocort

Triamcinolone has long since proved its unsurpassed efficacy and relative safety in the therapy of *rheumatoid arthritis, inflammatory and allergic dermatoses, bronchial asthma,* and all other conditions in which corticosteroids are indicated. But ARISTOCORT has also opened up new areas of therapy for selected patients who otherwise could not be given corticosteroids. Medicine is now in an era of "special-purpose" steroids.[1]

One outstanding advantage of triamcinolone is that it rarely produces edema and sodium retention.[1,2]

The clinical importance of this property cannot be overemphasized in treating certain types of patients. McGavack and associates[3] have reported the beneficial results with ARISTOCORT in patients with existing or impending cardiac failure, and those with obesity associated with lymphedema. Triamcinolone, in contrast to most other steroids, is not contraindicated in the presence of edema or impending cardiac decompensation.[3]

Hollander[1] points out the superiority of triamcinolone in not causing mental stimulation, increased appetite and weight gain, compared to other steroids which produce these effects in varying degrees. And McGavack,[2] in a comparative tabulation of steroid side effects, indicates that triamcinolone does not produce the increased appetite, insomnia, and psychic disturbances associated with other newer steroids.

ARISTOCORT can thus be advantageous for patients requiring corticosteroids whose appetites should not be stimulated, and for those who are already overweight or should not gain weight. Likewise, ARISTOCORT is suitable for the many patients with emotional and nervous disorders who should not be subjected to psychic stimulation. Furthermore, ARISTOCORT Triamcinolone, in effective doses, showed a low incidence of side reactions and is a steroid of choice for treating the older patient in whom salt and water retention may cause serious damage.[2]

References: 1. Hollander, J. L.: *J.A.M.A.* 172:306 (Jan. 23) 1960. 2. McGavack, T. H.: *Nebraska M. J.* 44:377 (Aug.) 1959. 3. McGavack, T. H.; Kao, K. Y. T.; Leake, D. A.; Bauer, H. G., and Berger, H. E.: *Am. J. M. Sc.* 236:720 (Dec.) 1958.

Precautions: Collateral hormonal effects generally associated with corticosteroids may be induced. These include Cushingoid manifestations and muscle weakness. However, sodium and potassium retention, edema, weight gain, psychic aberration and hypertension are exceedingly rare. Dosage should be individualized and kept at the lowest level needed to control symptoms. It should not exceed 36 mg. daily without potassium supplementation. Drug should not be withdrawn abruptly. Contraindicated in herpes simplex and chicken pox.

Supplied: Scored tablets—1 mg. (yellow); 2 mg. (pink); 4 mg. (white); 16 mg. (white).

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1. Barden, F. W., et al.: J. Maine M. A. 46:99, 1955.
2. Ford, R. A., and Blanchard, K.: Journal-Lancet 78:185, 1958.

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26 Dry Skin in younger patients (diabetes, etc.)	14	11	1
20 Atopic dermatitis	8	10	2
13 Actinic changes	9	4	–
10 Ichthyosis	3	4	3
Skin Conditions	Benefited	No Benefit	
20 Nummular dermatitis	19	1	
10 Neurodermatitis	10	–	

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1. Weissberg, G.: Clin. Med., June 1960.

2. Spoor, H. J.: N. Y. St. J. Med., Oct. 15, 1958.

**patent pending*
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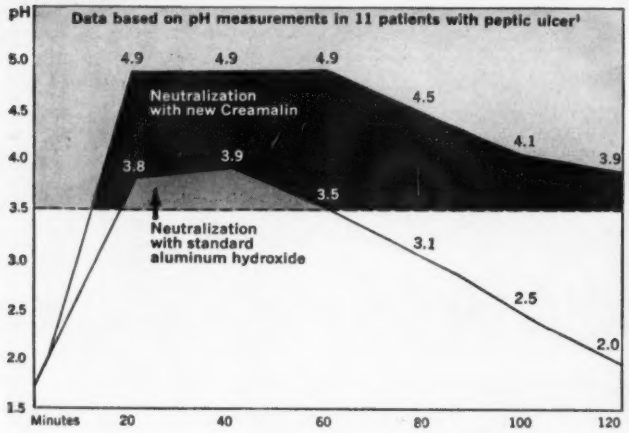

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1. Data in the files of the Department of Medical Research, Winthrop Laboratories. 2. Hinkel, E. T., Jr.; Fisher, M. P., and Tainter, M. L.: **J. Am. Pharm. A.** (Scient. Ed.) 48:384, July, 1959.

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In vitro studies show that STAPHCILLIN is a bactericidal penicillin with activity against staphylococci resistant to penicillin G. Strains of staphylococci so far tested have been sensitive to STAPHCILLIN *in vitro* at concentrations of 1-6 mcg. per ml. These levels are readily attained in the blood and tissues by administration of STAPHCILLIN at the recommended dosage. This unique attribute is probably due to the fact that STAPHCILLIN is stable in the presence of staphylococcal penicillinase. STAPHCILLIN also resists degradation by *B. cereus* penicillinase. The antimicrobial spectrum of STAPHCILLIN with regard to other microorganisms is qualitatively similar to that of penicillin G; but considerably higher concentrations of STAPHCILLIN are required for bactericidal activity than is the case with penicillin G.

STAPHCILLIN is rapidly absorbed after intramuscular injection. Peak blood levels (6-10 mcg./ml. on the average after a 1.0 Gm. dose) are attained within 1 hour; and then progressively decline to less than 1 mcg. over a 4 to 6 hour period. It is poorly absorbed from the gastrointestinal tract. STAPHCILLIN is rapidly excreted by the kidney.

As shown by animal studies, STAPHCILLIN is readily distributed in body tissues after intramuscular injection. Of the tissues studied, highest concentrations are reached in the kidney, liver, heart and lung in that order; the spleen and muscles show lower concentrations of the antibiotic. STAPHCILLIN diffuses into human pleural and prostatic fluids, but its diffusion into the spinal fluid has not yet been completely studied. However, one patient with meningitis showed a significant concentration in his spinal fluid while on STAPHCILLIN therapy.

Toxicity studies with STAPHCILLIN and penicillin G in animals show that they have approximately the same low order of toxicity.

Certain staphylococci can be made resistant to STAPHCILLIN in the laboratory, but this resistance is not related to their penicillinase production. During the clinical trials, no STAPHCILLIN-resistant strains of staphylococci were observed or developed; the possibility of the emergence of such strains in the clinical setting awaits further observation.

PRECAUTIONS

During the clinical trials, several mild skin reactions, e.g., itching, papular eruption and erythema were observed both during and after discontinuance of STAPHCILLIN therapy. Patients with histories of hay fever, asthma, urticaria and previous sensitivity to penicillin are more likely to react adversely to the penicillins. It is important that the possibility of penicillin anaphylaxis be kept in mind. Epinephrine and the usual adjuvants (antihistamines, corticosteroids) should be available for emergency treatment. Because of the resistance of STAPHCILLIN to destruction by penicillinase, parenteral *B. cereus* penicillinase may not be effective for the treatment of allergic reactions. Information with regard to cross-allergenicity between penicillin G, penicillin V, phenethicillin (Syncillin) and STAPHCILLIN is not available at present. If superinfection due to Gram-negative organisms or fungi occurs during STAPHCILLIN therapy, appropriate measures should be taken.

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UNIQUE SYNTHETIC "STAPH-CIDAL" PENICILLIN

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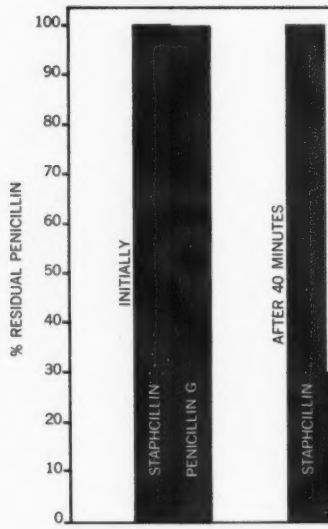

Specifically for

Stap

The failure of staphylococcal infec
the penicillin-destroying enzyme, p

Unlike other penicillins:

1 STAPHCILLIN is effective becau
ence of staphylococcal penicillinase

2 The clinical effectiveness of S
a wide variety of infections due to
and life-threatening.

Like other penicillins:

STAPHCILLIN has no significa
pain or irritation at the injection
penicillin G. *In occasional cases,*

PROFESSIONAL INFORMATION SH
plete information on the indications, do
additional information concerning clini
Bristol Laboratories is at your service. Yo
PLaza 7-7061, or by mail to Medical I

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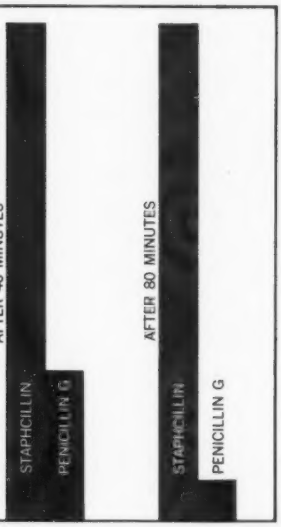
Divisi



In the presence of staphylococcal penicillinase, STAPHCILLIN remained active and retained its antibacterial action. By contrast, penicillin G was rapidly destroyed in the same period of time. *(After Gourevitch et al., to be published)*

or "resistant" staph...

phcillin™

sodium dimethoxyphenyl penicillin
FOR INJECTION

infections to respond to penicillin therapy is attributed to ne, penicillinase, produced by the invading staphylococcus.

ecause it retains its antibacterial activity despite the pres- nase.

of STAPHCILLIN has been confirmed by dramatic results in e to "resistant" staphylococci, many of which were serious

ificant systemic toxicity. It is well tolerated locally, and tion site is comparable to that following the injection of *es, typical penicillin reactions may be experienced.*

ON SERVICE – The attached Official Package Circular provides com- ns, dosage, and precautions for the use of STAPHCILLIN. If you desire clinical experiences with STAPHCILLIN, the Medical Department of ce. You may direct your inquiries via collect telephone call to New York, ical Department, Bristol Laboratories, 630 Fifth Ave., N. Y. 20, N. Y.

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UNIQUE SYNTHETIC "STAPH-CIDAL" PENICILLIN

OFFICIAL PACKAGE CIRCULAR
November, 1960

STAPHCILLIN™

(sodium dimethoxyphenyl penicillin)

For Injection

DESCRIPTION

STAPHCILLIN is a unique new synthetic parenteral penicillin produced by Bristol Laboratories for the specific treatment of staphylococcal infections due to resistant organisms. Its uniqueness resides in its property of resisting inactivation by staphylococcal penicillinase. It is active against strains of staphylococci which are resistant to other penicillins.

Each dry filled vial contains: 1 Gm. STAPHCILLIN (sodium dimethoxyphenyl penicillin), equivalent to 900 mg. dimethoxyphenyl penicillin activity.

INDICATIONS

STAPHCILLIN is recommended as specific therapy only in infections due to strains of staphylococci resistant to other penicillins, e.g.:

Skin and soft tissue infections: cellulitis, wound infections, carbuncles, pyoderma, furunculosis, lymphangitis and lymphadenitis.

Respiratory infections: staphylococcal lobar or bronchopneumonia, and lung abscesses combined with indicated surgical treatment.

Other infections: staphylococcal septicemia, bacteremia, acute or subacute endocarditis, acute osteomyelitis and enterocolitis.

Infections due to penicillin-sensitive staphylococci, streptococci, pneumococci and gonococci should be treated with Syncillin® or parenteral penicillin G rather than STAPHCILLIN. Treponemal infections should be treated with parenteral penicillin G.

DOSAGE AND ADMINISTRATION

STAPHCILLIN is well tolerated when given by deep intragluteal or intravenous injection.

As is the case with other antibiotics, the duration of therapy should be determined by the clinical and bacteriological response of the patient. Therapy should be continued for at least 48 hours after the patient has become afebrile, asymptomatic and cultures are negative. The usual duration has been 5-7 days.

Intramuscular route: The usual adult dose is 1 Gm. every 4 or 6 hours. Infants' and children's dosage is 25 mg. per Kg. (approximately 12 mg. per pound) every 6 hours.

Intravenous route: 1 Gm. every 6 hours using 50 ml. of sterile saline solution at the rate of 10 ml. per minute.

**Warning:* Solutions of STAPHCILLIN and kanamycin should not be mixed, as they rapidly inactivate each other. Data on the results of mixing STAPHCILLIN with other antibiotics are being accumulated.

DIRECTIONS FOR RECONSTITUTION

Add 1.5 ml. sterile distilled water or normal saline to a 1 Gm. vial and shake vigorously. Withdraw the clear, reconstituted solution (2.0 ml.) into a syringe and inject. The reconstituted solution contains 500 mg. of STAPHCILLIN per ml. Reconstituted solutions are stable for 24 hours under refrigeration.

For intravenous use, dilute the reconstituted dose in 50 ml. of sterile saline and inject at the rate of 10 ml. per minute.

*This statement supersedes that in the Official Package Circulars dated September and/or October, 1960.

(continued)

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...the proof of the Patrician "200" is in the radiograph!

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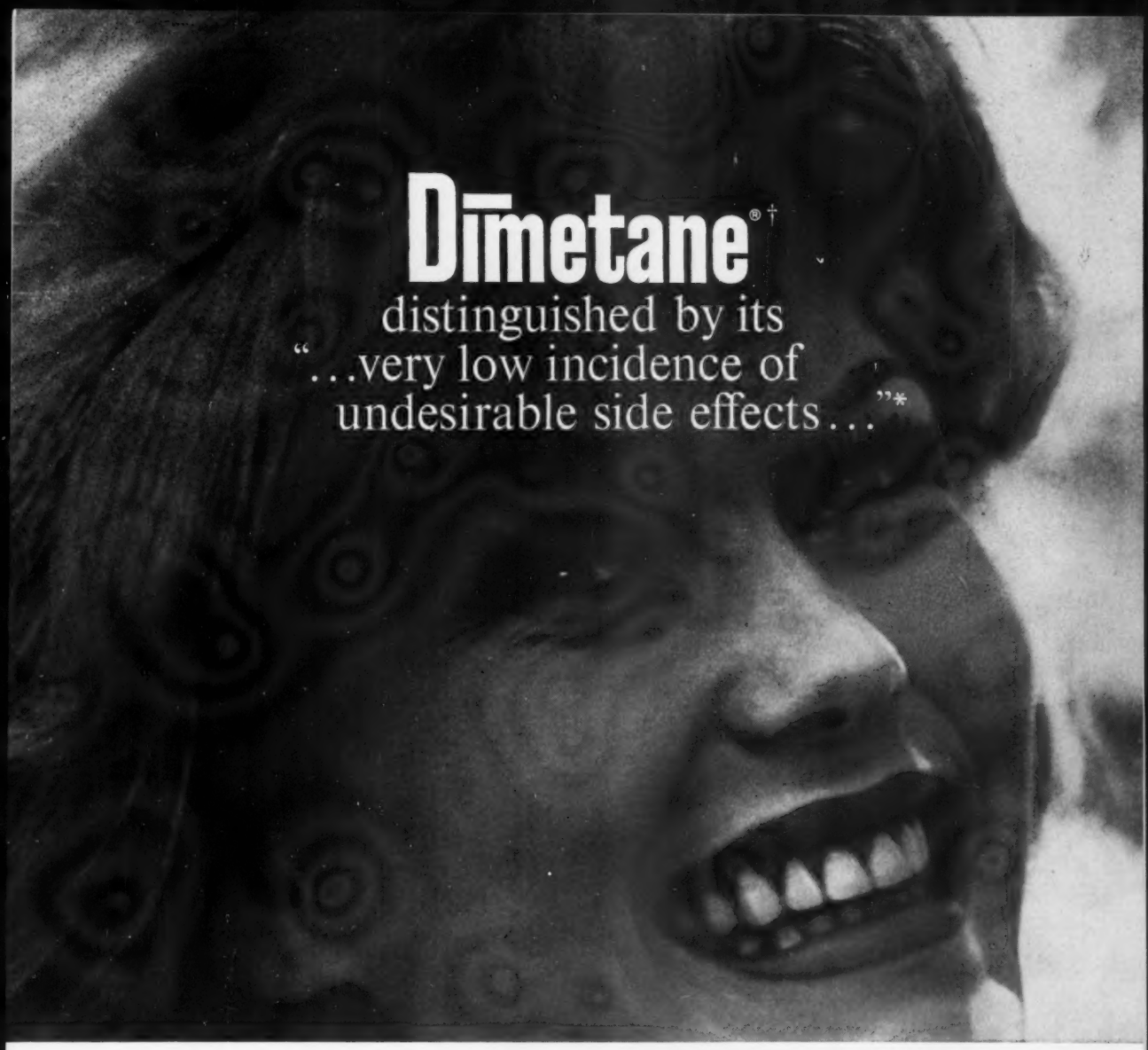

even in allergic infants

FROM A CLINICAL STUDY* IN ANNALS OF ALLERGY

Patients	200 infants and children, ages 2 months to 14 years
Diagnosis	Perennial allergic rhinitis
Therapy	Dimetane Elixir
Results	in 149, *good* results / in 40, *fair* results
Side Effects	Encountered in *only* 7 patients (in all except one, the side effect was mild drowsiness)

In allergic patients *of all ages,* Dimetane has been shown to work with an effectiveness rate of about 90% and to produce an exceptionally low incidence of side effects. Complete clinical data are available on request to the Medical Department. *Supplied:* DIMETANE Extentabs® (12 mg.), Tablets (4 mg.), Elixir (2 mg./5 cc.), new DIMETANE-TEN Injectable (10 mg./cc.) or new DIMETANE-100 Injectable (100 mg./cc.).

Robins

*MC GOVERN, J. P., MC ELHENNEY, T. R., HALL, T. R., AND BURDON, K.D.: ANNALS OF ALLERGY 17:915, 1959.

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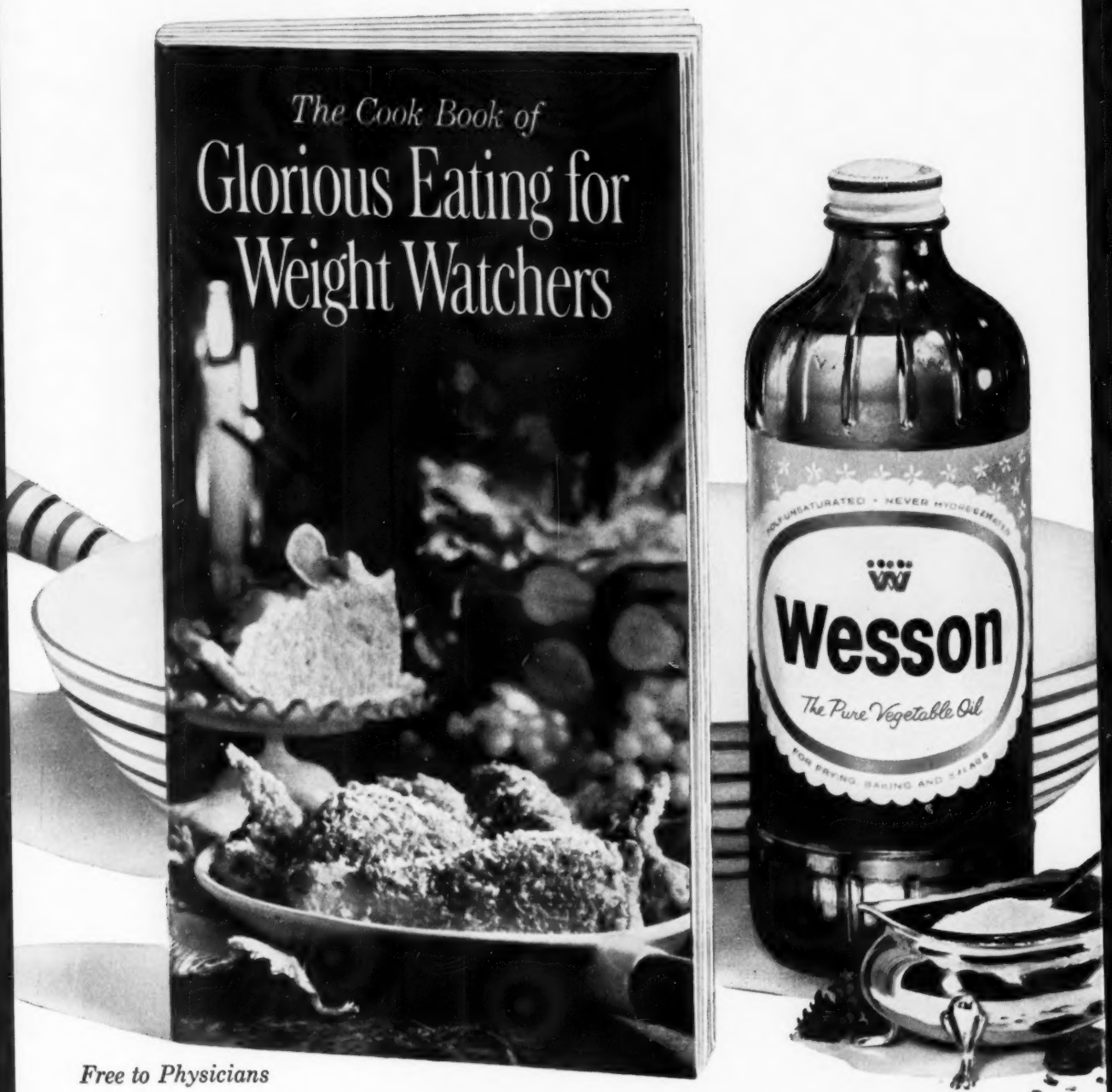

Free to Physicians

Menus fulfill the recommended dietary allowances of the Food & Nutrition Board of the National Research Council.

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Recipes and Menus that Provide Satiety and Appetite Appeal

The Cook Book of Glorious Eating for Weight Watchers fills the long-felt need for a weight control plan that is workable for everybody in the family. Realistic regimens are built around good, natural, readily-available foods enhanced by delicious methods of preparation. In place of "fad diets" or tasteless formulas, it provides for truly appetizing meals. It teaches and encourages the development of the healthful eating habits that can prevent overweight, America's #1 Health Problem. This full-color Cook Book contains 100 pages—248 delicious recipes each with calorie counts. Complete menus are here at 3 calorie levels—1200, 1800, 2600. Calorie levels are related to "best" weights by sex, age, size and extent of activity.

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Poly-unsaturated Wesson is unsurpassed by any readily available brand where a vegetable (salad) oil is medically recommended for a cholesterol depressant regimen. As an aid to physicians, Wesson has made available "Your Cholesterol Depressant Diet Book". This book is for professional distribution only—not offered *to laymen.*

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Say you saw it in the Journal of the Michigan State Medical Society

"nutrition...present as a modifying or complicating factor in nearly every illness or disease state"[1]

1. Youmans, J. B.: Am. J. Med. 25:659 (Nov.) 1958

cardiac diseases "Who can say, for example, whether the patient chronically ill with myocardial failure may not have a poorer myocardium because of a moderate deficiency in the vitamin B-complex? Something is known of the relationship of vitamin C to the intercellular ground substance and repair of tissues. One may speculate upon the effects of a deficiency of this vitamin, short of scurvy, upon the tissues in chronic disease."[2] 2. Kampmeier, R. H.: Am. J. Med. 25:662 (Nov.) 1958.

arthritis "It is our practice to prescribe a multiple vitamin preparation to patients with rheumatoid arthritis simply to insure nutritional adequacy . . ."[3]

3. Fernandez-Herlihy, L: Lahey Clinic Bull. 11:12 (July-Sept.) 1958.

digestive diseases Symptoms attributable to B-vitamin deficiency are commonly observed in patients on peptic ulcer diets.[4] Daily administration of therapeutic vitamins to patients with hepatitis and cirrhosis is recommended by the National Research Council.[5] 4. Sebrell, W. H.: Am. J. Med. 25:673 (Nov.) 1958. 5. Pollack, H., and Halpern, S. L.: Therapeutic Nutrition, National Academy of Sciences and National Research Council, Washington, D. C., 1952, p. 57.

degenerative diseases "Studies by Wexberg, Jolliffe and others have indicated that many of the symptoms attributed in the past to senility or to cerebral arteriosclerosis seem to respond with remarkable speed to the administration of vitamins, particularly niacin and ascorbic acid. These facts indicate that the vitamin reserve of aging persons is lowered, even to the danger point, more than is the case in the average American adult."[6] 6. Overholser, W., and Fong, T.C.C. In Stieglitz, E. J.: Geriatric Medicine, 3rd edition, J. B. Lippincott, Philadelphia, 1954, p. 264.

infectious diseases Infections cause a lowering of ascorbic acid levels in the plasma; and the absorption of this vitamin is reduced in diarrheal states.[7] 7. Goldsmith, G. A.: Conference on Vitamin C. The New York Academy of Sciences, New York City, Oct. 7 and 8, 1960. Reported in: Medical Science 8:772 (Dec.10) 1960.

diabetes Diabetics, like all patients on restricted diets, require an extra source of vitamins.[8] "Rigidly limiting the bread intake of the diabetic patient automatically eliminates a large amount of thiamin from the diet. . . . There is some evidence of interference with normal riboflavin utilization during catabolic episodes."[9]

8. Duncan G. G.: Diseases of Metabolism 4th edition W. B. Saunders, Philadelphia, 1959, p. 812. 9. Pollack, H.: Am. J. Med. 25:708 (Nov.) 1958.

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Usual dosage: One or two 400 mg. tablets t.i.d.
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NEW analgesic

Kills pain

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For neuralgias, dysmenorrhea, upper respiratory distress, postsurgical conditions... new compound kills pain, stops tension, reduces fever—gives more complete relief than other analgesics.

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References available on request.

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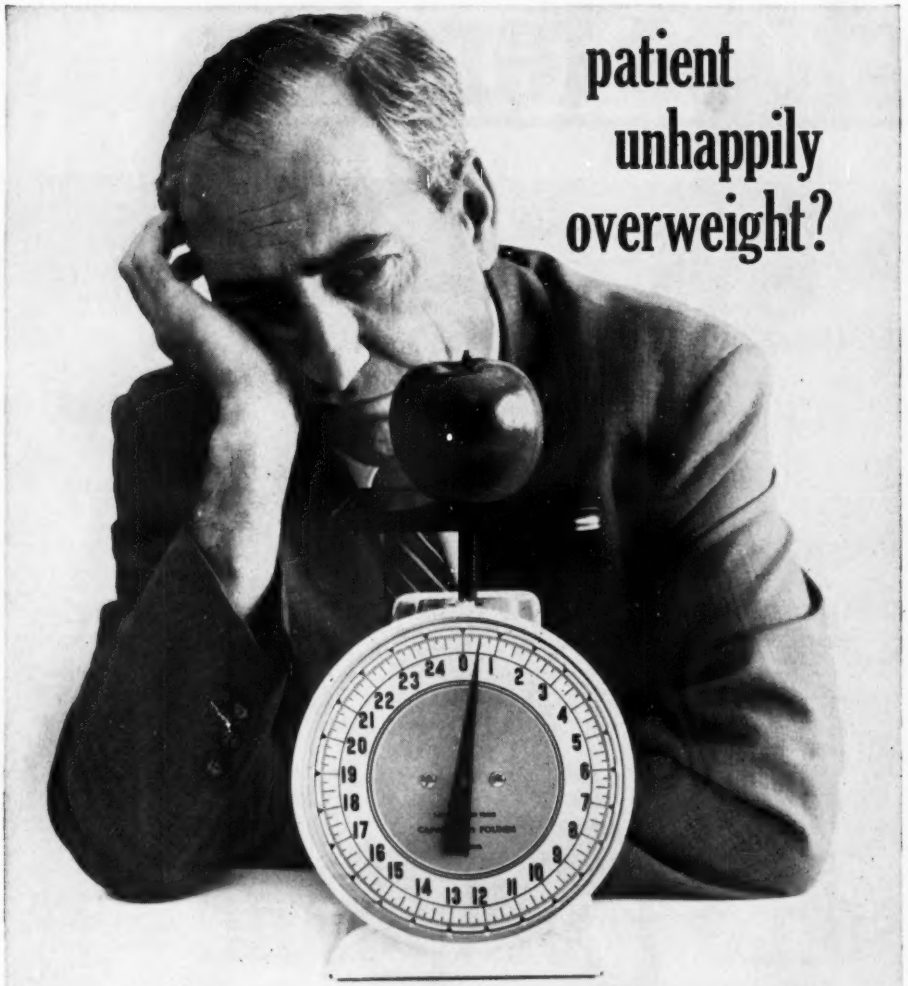

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[1] Douglas, H. S.: West. J. Surg. 59:238 (May) 1951.

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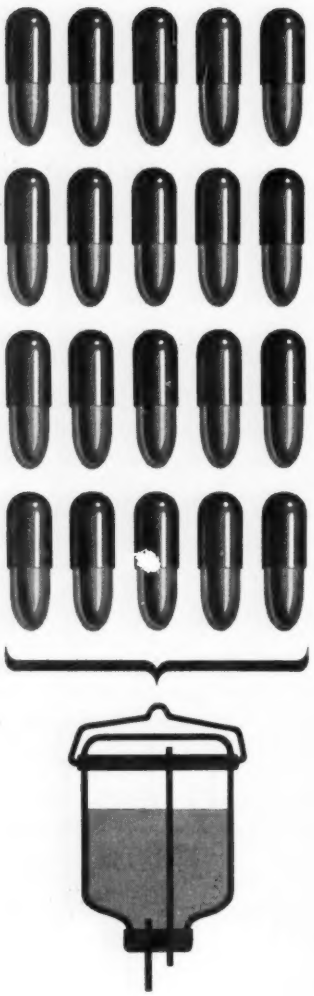

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Two Pulvules Trinsicon (daily dose) provide:

Special Liver-Stomach Concentrate, Lilly (containing Intrinsic Factor) . . . . 300 mg.

Vitamin B_{12} with Intrinsic Factor Concentrate, N.F. . . . . 1 N.F. unit (oral)

Cobalamin Concentrate, N.F., equivalent to Cobalamin . . . . . 15 mcg.
(The above three ingredients are clinically equivalent to 1½ N.F. units of APA potency.)

Ferrous Sulfate, Anhydrous . . . . . 600 mg.
(Equal to over 1 Gm. Ferrous Sulfate, U.S.P.)

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Evaluation of Two Electron Microscope Techniques, The Artefacts Involved, and Their Bearing on The Interpretation of Published Work

M. K. Keech, M.D.
Detroit, Michigan

A TIME-HONOURED method for preparing biological specimens for examination in the electron microscope (EM) is disintegration in a tissue grinder until the particles of the suspension are small enough to enable photographs to be taken of their fine structure. No critical analysis or assessment of the artefacts involved has been published, and no comparison with other methods, employing the same material, has been made. This study was planned to remedy this omission and to re-examine published work in the light of the results. In the course of this investigation, new observations were recorded on the relative *stability* of collagen fibrils re-precipitated by different methods as compared with fresh dermal collagen.

Materials and Methods

Table I

Re-precipitated Collagen.—The substrates used were those prepared by Wood[25] and whose EM morphology has been described elsewhere.[17] The purpose of present study was the comparison of the undisturbed, replicated reaction mixture and samples ground for varying lengths of time. Briefly, salt-extracted calf dermis was solubilised in acetic acid and the collagen then re-precipitated by the addition of phosphate buffer pH 7.0 either alone (controls), or in the presence of ribonucleic acid (RNA), desoxyribosenucleic acid (DNA), purified chondroitin sulphate (CSA) b and c (supplied by K. Meyer) or heparin. The final reaction mixtures had a collagen concentration of 0.05 per cent, a phosphate concentration of 0.04 M, ionic strength 0.2 and a concentration of special substances (DNA, et cetera) of 0.005 per cent except the heparin which was 0.0005 per cent. The preparations were examined after twenty-four hours at the various temperatures detailed in Table I.

1. *Replicas:*—This method has been described in detail by Wood and the author.[26] Portions of the metal-shadowed replica of the surface of the undisturbed reaction mixture were picked up on grids and examined in the EM.

2. *Ground Samples:*—Samples were taken after grinding 3, 12, or 20 times as indicated in Table I, placed on collodion-covered 200-mesh copper grids, allowed to dry, washed with distilled water, shadowed with chromium, and examined in a Siemen's electron microscope, type UM 60 C.

Dr. Keech is Associate Professor of Medicine in charge of Section of Rheumatology, College of Medicine, Wayne State University. This work was performed by the author in the Department of Medicine, University of Leeds, England, as an Empire Rheumatism Council Research Fellow.

TABLE I. THE EFFECTS OF DIFFERENT METHODS OF PREPARATION ON VARIOUS COLLAGEN SUBSTRATES

Materials and Method			
Untreated PM Dermis	Ground 3 x	Ground 20 x	
9 years	Normal child dermis (see text). Very scanty small DB. Average "elastin" count= 10/square.	Well preserved collagen fibrils. Slight increase in DB and AM. Average "elastin" count= 7.8/square.	
63 years	Normal adult dermis (see text). Very scanty small DB. Average "elastin" count= 3.7/square.	Well preserved collagen fibrils. Slight increase in DB and AM. Average "elastin" count= 4/square.	
Re-precipitated Collagen	Replica	Ground	
Control 24 hours at 20-23°C.	Dense network of collagen (Grade 3). No DB, AM or "elastin."	60% AM 25% DB 1% "elastin" 5% degenerate collagen.	
RNA 24 hours at 20-23°C.	Dense network of collagen (Grade 1). No DB, AM or "elastin."	40% AM 20% DB 1% "elastin" 15-20% collagen.	
DNA 24 hours at 20-23°C.	Abnormal, wide collagen fibres and tactoids. No DB, AM or "elastin."	20% AM 60% DB 5% "elastin" 1-2% degenerate collagen (no tactoids).	
Re-precipitated Collagen	Replica	Ground 3 x	Ground 12 x
Control 24 hours at 23-25°C.	Dense network of collagen (Grade 2). No DB, AM or "elastin."	10% normal and degenerate collagen. Clumps of AM mixed with the collagen. Hardly any DB. Average "elastin" count=6/square.	Unchanged except for slight increase in DB. Average "elastin" count= 5/square.
CSA b 24 hours at 23-25°C.	Very dense network of collagen (Grade 3). No DB, AM or "elastin."	10% normal and degenerate collagen. Clumps of AM mixed with the collagen. Scanty DB. Average "elastin" count= 5/square.	Unchanged except for moderate increase in DB. Average "elastin" count= 7.5/square.
CSA c 24 hours at 23-25°C.	Very dense network of collagen (Grade 3). No DB, AM or "elastin."	10% normal and degenerate collagen. Clumps of AM mixed with the collagen. Scanty DB. Average "elastin" count= 6/square.	Unchanged except for slight increase in DB. Average "elastin" count= 6/square.
Heparin 24 hours at 23-25°C.	Dense network of collagen (Grade 1). No DB, AM or "elastin."	Degenerate collagen. Clumps of AM. Very scanty DB. Average "elastin" count= 4/square.	Unchanged except for marked increase in DB. Average "elastin" count= 5/square.
Re-precipitated Collagen	Replica	Ground 3 x	Ground 20 x
Control 24 hours at 21°C.	Dense network of collagen (Grade 1). No DB, AM or "elastin."	10% normal and degenerate collagen. Clumps of AM mixed with the collagen. Hardly any DB. Average "elastin" count=6/square.	Unchanged except for moderate increase in DB. Average "elastin" count= 8/square.
Control 24 hours at 37°C.	Dense network of collagen (Grade 3). No DB, AM or "elastin."	10% normal collagen. Clumps of AM mixed with the collagen. Hardly any DB. Average "elastin" count= 5/square.	Unchanged except for moderate increase in DB. Average "elastin" count= 7/square.

All fibres exhibited 640 A° cross-banding. For collagen grading see Terminology.
Re-precipitated collagen: Salt-extracted solubilized calf dermis re-precipitated by the addition of phosphate buffer pH 7.0 either alone (controls), or in the presence of ribonucleic acid (RNA), desoxyribosenucleic acid (DNA), purified chondroitin sulphate (CSA) b and c (supplied by K. Meyer) or heparin. The final reaction mixtures had a collagen concentration of 0.05%, a phosphate concentration of 0.04 M. ionic strength 0.2 and a concentration of special substances of 0.005% except the heparin, which was 0.0005%.
All the ground specimens had been diluted with water. The percentages are approximate values assessed by careful examination on the EM screen. Over 1,000 microscopic fields were scrutinized from each specimen and the "elastin" counted in exactly 500 fields (20 squares) the average per square being recorded.
DB=dense bits; AM=amorphous material; PM=postmortem.

Counts of the elastin-like structures ("elastin" in Table I) were made by carefully scanning exactly 500 microscopic fields (20 grid-squares) from two different grids, the average number per square being recorded. The high-power eye-piece was frequently used to establish the identity of the many small pieces seen. Over one thousand microscopic fields were scrutinised from each specimen.

Fresh Dermis.—The unfixed dermis from upper abdominal postmortem skin from two cases, aged nine and sixty-three years, was carefully dissected from the epidermis and subcutaneous tissue, and ground in a glass tissue grinder. Samples were taken after grinding three and twenty times and prepared as described above.

Preparations of *unground* starting material were attempted by teasing the fresh dermis with needles, but satisfactory samples fine enough for electron microscope examination could not be obtained without slight grinding.

TABLE II. ANALYSIS OF COLLAGEN FIBRIL WIDTH AFTER DIFFERENT METHODS OF PREPARATION

Substrate	Experiment	Fibril Width (A°)						Collagen Grading
		<1,000	1,000	1,200	1,400	2,000	3,000	
Untreated PM Dermis 9 years	Ground 3 x	occ.	+++	++	+	–	–	3
	Ground 20 x	occ.	+++	++	–	–	–	
63 years	Ground 3 x	–	+++	++	++	–	–	3
	Ground 20 x	–	+++	++	++	–	–	
Re-precipated Collagen Control	Replica	–	+	+	+	+	–	3
	Ground	occ.	++	+	+	–	–	
RNA	Replica	–	+	+	+	++	+	1
	Ground	–	+	+	++	+++	+	
DNA	Replica	Abnormal compound fibres						–
	Ground	Scanty and difficult to measure						
Re-precipitated Collagen Control	Replica	–	–	–	occ.	++	++	1
	Ground 3 x	–	occ.	occ.	occ.	+++	+	
	Ground 12 x	–	occ.	occ.	occ.	+++	+	
CSA b	Replica	+	++	+	+	–	–	3
	Ground 3 x	occ.	++	+	+	–	–	
	Ground 12 x	occ.	++	+	+	–	–	
CSA c	Replica	+	++	+	+	–	–	3
	Ground 3 x	occ.	++	+	+	–	–	
	Ground 12 x	occ.	++	+	+	–	–	
Heparin 0.0005%	Replica	–	+	+	+	++	+	1
	Ground 3 x	Too degenerate to measure						
	Ground 12 x	Too degenerate to measure						
Re-precipitated Collagen Control (21° C.)	Replica	–	–	–	occ.	+++	++	1
	Ground 3 x	occ.	occ.	occ.	occ.	+++	+	
	Ground 20 x	–	occ.	occ.	occ.	+++	+	
Control (37° C.)	Replica	occ.	+++	+	+	–	–	3
	Ground 3 x	occ.	+++	occ.	occ.	–	–	
	Ground 20 x	occ.	+++	occ.	occ.	–	–	

These data were obtained by analyzing 293 photographic plates with a scaled Leitz eye-peice. Normal (dermal) fibril width is 1,000-1,400 A°. All fibres exhibited 640 A° cross-banding. For collagen grading see Terminology.
PM=postmortem; occ.=occasional; RNA=ribonucleic acid; DNA=desoxyribosenucleic acid; CSA=chondroitin sulphate (purified fractions supplied by K. Meyer).
All the fibrils were long except those precipitated in the presence of heparin and DNA.

Terminology

Collagen Grading.—In normal skin, the fibrils are mainly 1,000-1,400 A° in width, rigid and of indefinite length. Narrow fibrils and visualisation of the (tapered) fibril ends characterise young skin or actively growing tissue.[1-3] The presence of acute bends is evidence of flaccidity of the fibrils as the suspension settles on the grid during drying. Because all the replicated precipitates described in the present paper consisted of collagen only (with hardly any debris and no elastin-like structures, amorphous material or buffer salts), these characteristics at each time-interval could be easily established. Although the deposits were re-precipitated (dermal) collagen and not fresh tissue, the following morphological separation into grades proved valuable.

Grade 1:—Apparently undivided fibrils 2,000-4,000 A° in width, occurring singly or in bundles.
A few 1,000-1,400 A° fibrils.
Frequent acute fibril bends and tapered ends.

Grade 2:—Some 2,000-4,000 A° fibrils but mainly fibrils 1,000-1,400 A° wide, occurring singly or in bundles.
A few tapered ends.

Grade 3:—Long, rigid fibrils 1,000-1,400 A° wide occurring singly or in bundles.
Resembles unfixed, normal, adult dermis.

It should be made quite clear that the above grading is valid for comparative purposes within a particular set of experiments using the *same* collagen extract but, although the principle still holds good, the actual appearance in each grade might differ slightly if another solution of collagen were employed.

Measurement of Fibril Width.—In conformity with present-day terminology, "fibril" denotes an apparently single structure at the magnification used. Fibril width was measured on the EM plates with a scaled Leitz eye-piece (magnification x 8). Only single fibrils were measured, aggregates of fibrils being disregarded. It is assumed that the former provide a representative sample of all the fibrils. Thus, Table II can be compared with the fibril widths reported for fresh tissue by the following authors: Schwarz,[22] Banfield,[3] Burton and Reed,[5] Tunbridge and his associates,[23] Gross and Schmitt,[11] Gross[7,8] and the author.[16]

Results

Tables I and II

The fibres present in all the experiments exhibited 640 A° cross-banding.

Untreated Postmortem Dermis (Plate I, Figs. 1-4).—The unfixed, postmortem derma shows the usual age differences previously described.[16,18] A small quantity of elastin-like material is evenly distributed over all the grids examined and there is no change in the "elastin" counts even when the grinding is increased seven-fold. Also the collagen fibrils remain well preserved. As noted above, it proved impossible to obtain satisfactory *un*ground starting materials fine enough for EM examination.

Re-precipitated Collagen (Plate I-V, Figs. 5-27).—The re-precipitated collagen results are summarised in Tables I and II which bring out the following points:

1. The undisturbed, replicated precipitate presents a totally different picture from the ground specimens. The former consists almost entirely of striated collagen, the fibrils varying in width and length according to the experimental conditions (Table II). No dense bits, amorphous material, or "elastin" are seen in any sample—although scanty debris is present. On the other hand, after grinding, the collagen is decreased in amount (see Discussion) being mixed with amorphous material and dense bits. In addition, a small quantity of typical "elastin" is very evenly distributed over all the grids, the counts per square being of the same order as the postmortem dermis. The majority are small pieces of "skin-type elastin"[19] and the high-power eye-piece was frequently employed to ensure their identity.

2. Careful counts do not reveal any significant increase of "elastin" after the longer grinding (four-fold or seven-fold) although, in some specimens, there is an average increase of one piece per square (25 microscopic fields).

3. Grinding definitely breaks down the wide collagen bundles seen in the replicas to smaller bundles or single fibrils, but the basic fibril width appertaining to each experiment remains *unaffected*. This was ascertained by measurement of all undegenerate, in-focus fibrils on 293 photographic plates, as shown in Table II. The plus-minus method of recording gives a general picture of the numbers observed for any given width, but does not necessarily reflect the occasional fibril which may occur outside the extremes of the range encountered.

4. Scanty, dense square-ended fibres (as described by Reed and the author[18]) are present in the postmortem dermis but are absent from all the ground samples of re-precipitated collagen.

5. The influence of the special substances on the (replicated) morphology of the fibrous precipitate has been described in detail elsewhere.[17] For the purpose of the present paper, two major effects are noted, each having a bearing on the other: fibril width and the capacity of the fibrils to withstand grinding. Table II clearly demonstrates that, although the fibril width varies with the experimental conditions, it remains *unaffected* by grinding. Collagen re-precipitated in the presence of CSA (Plate III, Figs. 14-19) is long, rigid and of normal (dermal) width (*Grade 3*). DNA (Plate II, Figs. 9 and 10) and heparin (Plate IV, Figs. 20 and 21) produce short, abnormal, wide structures which are rendered so degenerate by the process of grinding that their width cannot be measured. Collagen re-precipitated by the addition of phosphate buffer alone, that is, the control experiments (Plate II, Figs. 11-13), consists of wider fibrils than either CSA or the untreated postmortem dermis (Plate I, Figs. 1-4).

6. Increase in temperature produces a similar effect to CSA. Control collagen re-precipitated at 21° C. consists mainly of fibrils 2,000-4,000 A° wide, and a proportion of these are rendered degenerate by grinding (Plate IV, Figs. 22-24). In contrast, the precipitate formed at 37° C. is composed of long, rigid fibrils of normal (dermal) width that remain well-preserved even after grinding twenty times (Plate V, Figs. 25-27).

Discussion

The results reported in this paper may be considered from several aspects (1) comparison of replicated and ground EM specimens, (2) the stability of the collagen fibril, (3) recognition of artefacts and attempted elimination by careful preparatory techniques, and (4) the interpretation of previously published work in the light of the present study.

Comparison of Replicated and Ground EM Specimens (Table I).—The replicas represented the surface of the undisturbed precipitate, whereas the ground specimens were prepared by placing a small quantity of dermis or collagen gel on the tip of a glass plunger, inserting it into a matched ground glass container, and gently grinding in 0.5 ml. of distilled water. (Grinding in neutral phosphate buffer did not alter the picture). The resulting milky sus-

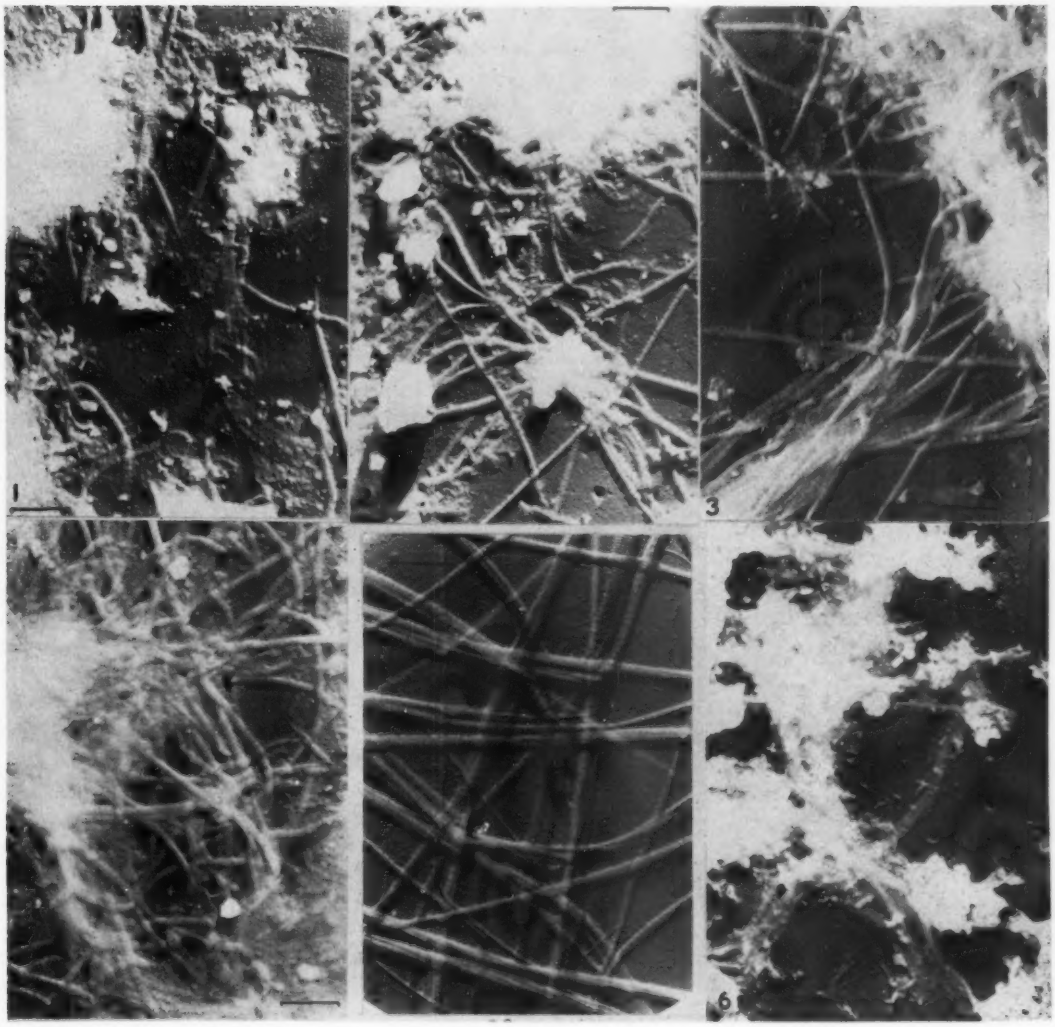

PLATE I

Figs. 1-4. Unfixed, fresh whole dermis from postmortem controls aged nine and sixty-three years. Fig. 1 shows typical child dermis after grinding three times, with narrower fibrils and more amorphous material than in the adult. After grinding twenty times (Fig. 2) the only change was a slight increase in dense bits and amorphous material. Similarly, comparison of the adult dermis ground three and twenty times (Figs. 3 and 4) only revealed a slight increase in amorphous material and dense bits with good preservation of the collagen fibrils.

Figs. 5 and 6. The replicated undisturbed control reaction mixture (Fig. 5) consisted of a network of collagen fibrils 1,000-1,400 A° in width. After grinding (Fig. 6) there was a decrease in collagen and appearance of amorphous material, dense bits and scanty "elastin." No tapered fibril ends or tactoids were seen.

Note: *The scale marked on all the figures represents 1μ. The replicas were shadowed with gold palladium and the ground specimens with chromium. All the striated structures exhibited 640 A° cross-banding, and all experiments were conducted at room temperature unless otherwise stated.*

pension contained solid particles which aggregated to form a "core" too large for EM examination. Samples of the surrounding finer suspension were examined in the usual way. Thus, several factors contributed to the decrease in collagen observed in the ground samples of re-precipitated collagen (Table I) as compared with their corresponding replicas: dilution, the hard "core" remaining in the grinder and the probable loss of some of the more unstable re-precipitated collagen by disintegration into amorphous material and, possibly, "elastin." The dilution factor was kept as constant as possible and the density of the ground deposits on the grids was approximately the same for all experiments. A "core" formed with all the substrates employed, and represents a disadvantage inherent in the grinding technique. However, if other factors are kept as constant as possible, examination of the surrounding suspension from different samples are comparable in respect to particle size, ease of separation from the parent tissue and the like, but not necessarily in respect to the relative quantities of collagen and elastin observed.

Amorphous material was absent in the replicas but present in the ground preparations. There was *no* significant increase when grinding was increased four-fold and seven-fold, and the untreated postmortem dermis showed the usual variation with age in spite of prolonged grinding. Its appearance and situation makes it highly probable that part of it was derived from degenerate, unstable collagen. The abnormal collagen re-precipitated in the presence of very small quantities of heparin and DNA was so unstable that even grinding three times rendered it degenerate and difficult to measure (Table II). In contrast, the postmortem collagen fibrils, or those precipitated in the presence of CSA or at a higher temperature (37° C.) were well-preserved even though ground twenty times (Table I), although these preparations still contained some amorphous material. As pointed out in previous publications,[13,15] material appearing amorphous in the electron microscope may vary both in chemical composition and source. In the present work it could derive from breakdown of unstable fibrils, or, in fresh tissue, it may represent the normal inter-bundle matrix or release of interfibrillar material from within the collagen bundles during grinding. Thus its presence in *ground*, and its absence in *replicated* samples of the same material is very understandable and must be taken into consideration when interpreting EM results. However, the fact that there was *no* significant increase with increased grinding, and that the postmortem dermis exhibited the usual variation with age, renders *comparison* of normal and pathological specimens valid *(vide infra)*.

Like amorphous material, *dense bits* were a constant feature after grinding (Table I). They were very scanty in normal, fresh dermis and the re-precipitated collagen ground three times but, unlike the amorphous material, their numbers increased as grinding was prolonged. As pointed out in previous publications,[15,19] the dense bits seen in the electron microscope may represent fragments of different structures depending on the experimental conditions and substrates used. For example, they may be a breakdown product of collagen (especially after treatment with alkali); of "moth-eaten" fibres (MEF); of the large, dense square-ended fibres found in normal fresh dermis[18]; particles of the ground connective tissue fibres described by Cruise,[6] or sections of the thick elastic fibres found in ox ligamentum nuchae or aortic media.[13] They increase in number (and may decrease in size) as grinding proceeds, and, under certain circumstances, they may be incorporated into newly-formed structures.[19]

The fact that addition of CSA and heparin did *not* increase the *elastin* counts over the control value (see Table I)—a comparable small amount being evenly distributed over all the grids of the re-precipitated collagen experiments—suggests that these substances are not necessary for its formation. The "elastin" counts were *not* significantly increased by the more prolonged grinding and this important finding is discussed later in relation to previously published work. The *absence* of elastin-like material in all the undisturbed replicated precipitates is presumably due to the absence of elastin in the collagen solutions employed. These collagen solutions were prepared from calf dermis by exhaustive extraction —first with salt and then with acetic acid, followed by dialysis of the acetic acid extract against 0.1 M NaCl to give a clear, viscous solution with a collagen content of about 0.1 per cent. The deposit re-precipitated by the addition of phosphate buffer alone or in the presence of small amounts of added substances, had *no* elastin-like material if left undisturbed, but a small quantity appeared after grinding in every case. Most of the pieces of "elastin" were small, resembled "skin-type" elastin[19] and, as stated under Methods, required frequent examination under the high-power eye-piece to ensure their identity. Thus, this evenly-distributed, four to eight pieces

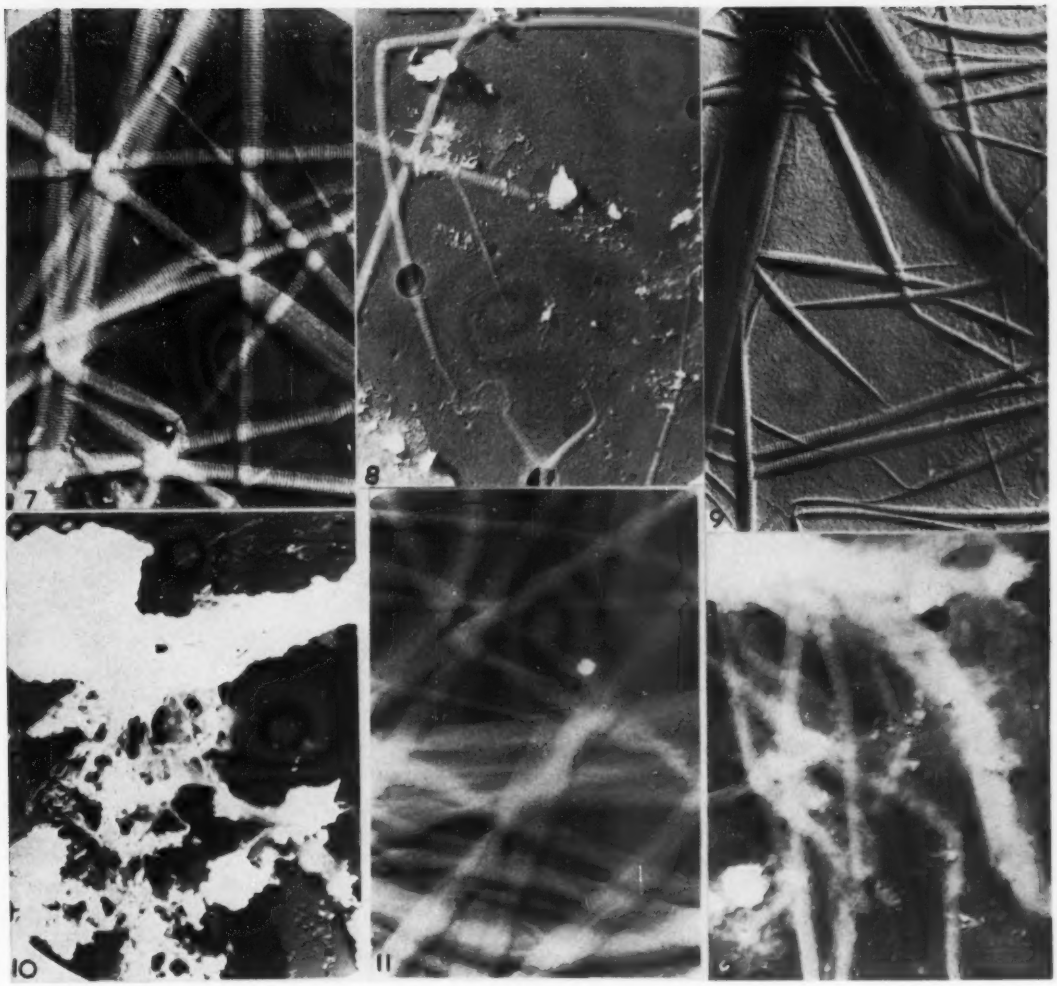

PLATE II

Figs. 7 and 8. The majority of the replicated collagen fibrils re-precipitated in the presence of ribonucleic acid (RNA) were 2,000-3,000 A° wide and exhibited acute fibril bends and tapered ends (Fig. 7). After grinding the collagen was decreased but some tactoids and tapered ends could still be seen (Fig. 8) accompanied by the appearance of amorphous material, dense bits and scanty "elastin."

Figs. 9 and 10. The replicated undisturbed reaction mixture (Fig. 9) re-precipitated in the presence of desoxyribosenucleic acid (DNA) consisted of abnormal, wide, striated structures; short slender tactoids 600-1,000 A° in width, and non-striated background filaments. After grinding (Fig. 10) the deposit consisted mainly of dense bits with some amorphous material and "elastin," the scanty collagen being frequently coated with amorphous material. No tactoids, wide fibres or tapered fibril ends were seen.

Figs. 11 and 12. The replicated undisturbed control reaction mixture (Fig. 11) consisted of a dense network of collagen fibrils 2,000-3,000 A° in width that exhibited marked lateral aggregation. After grinding three times (Fig. 12) the collagen was decreased in amount, and both striated and degenerate wide fibrils were mixed with amorphous material, a few dense bits and scanty "elastin."

per 25 fields appears to be an artefact consequent on mechanical manipulation of the reaction mixture, with *no* significant increase after prolonging the grinding up to seven-fold. Since no known elastin component was present in these experiments, it is presumed that a small fraction of the re-precipitated collagen less stable than the rest (possibly the most recently-formed), had become denatured to form these structures.

In the samples of untreated fresh dermis, the amount of elastin varied with age but not with prolonged grinding, and the counted structures conformed to the previously described morphologic range.[18,19] No chemical assessment was made.

A widely-used method of preparing EM specimens is homogenisation in a Waring blendor. As pointed out,[14] the temperature has to be carefully regulated —otherwise, thermal denaturation of the fibrils (especially those from young or growing tissue) will occur. No evidence of thermal change was seen in any of the present or previously reported work employing gentle grinding as an EM technique.

The Stability of the Collagen Fibril (Table I).— It has frequently been stressed that fibrils morphologically typical of collagen can be formed *in vitro* in the absence of cells, enzymes, or ionic salts.[10,20] However, little has been said about the relative *stability* of fibrils re-precipitated by different methods as compared with fresh dermal collagen. Although this investigation was primarily an attempt to compare two different methods of preparing the same experimental material (re-precipitated collagen) for EM examination with a view to evaluating any artefacts produced, it became evident that certain morphologic features correlated with the ability of the fibrils to withstand the mechanical stress imposed by the second technique, namely grinding. As described under the paragraph headed *Amorphous material*, the long, narrow, rigid fibrils re-precipitated in the presence of CSA or at 37° C. were well-preserved even after being ground twenty times, whereas most of the abnormal, wide structures formed with heparin and DNA were altered after grinding only three times. The stability of the low-temperature control and RNA deposits were intermediate between these two extremes. As detailed under Terminology, the morphologic features were classified into grades, *Grade 3* resembling adult, fresh dermis. The most important criteria appeared to be the width, length and rigidity of the re-precipitated fibrils (Table II). The closer the deposit approximated to the morphology of adult, fresh dermis, the greater the capacity to withstand mechanical stress. The post-mortem collagen remained well-preserved after grinding.

Recent work on the rate of precipitation of the collagen examined in the present study[25,26] revealed that factors which speeded up collagen precipitation (CSA, increase in temperature, . . .) produced a *Grade 3* deposit, whereas factors such as DNA and heparin, which markedly delayed precipitation, gave a *Grade 1* deposit. Body temperature ensures that collagen is formed at 37° C. and this study suggests that very small fluctuations in the amount of normal connective tissue constituents such as CSA and heparin, or an imbalance of the RNA-DNA systems (and their respective enzymes) within the cells, may have far-reaching effects on the products of the fibroblast and, hence, on the stability of the collagen formed.

Recognition of Artefacts and Attempted Elimination by Careful Preparatory Techniques.—In order to obtain reproducible results when re-precipitating collagen from solution, Vanamee and Porter[24] stressed the importance of carefully reproducing not only the concentration of collagen, hydrogen ions, and the like, but also any physical aspects of the technique that would tend to disturb the fibre formations during and after their development. Gross[9] also noted that apparently identical experiments using solutions of ichthyocol did not reproduce the same intermediate morphologic stages. In the present study, the re-precipitated collagen experiments employed the substrates and methods recently described by Wood and the author.[26] The following information was gained from mistakes in technique in the early stages of the work, and were omitted from the published results. These mistakes, however, are pertinent to the present investigation and serve to emphasize the vital importance of using freshly-made collagen extracts, uncontaminated solutions, the avoidance of heat when drying the specimen for EM examination, and the necessity for the exact reproduction of every aspect of experimental procedure in order to obtain comparable results.

1. The reaction mixtures intended for replication were dried in a stream of air at room temperature at the same distance from a small hair dryer. One sample was dried in a current of warm air. The deposit contained a large number of thick, twisted, rope-like, non-striated fibrils (Plate V, Fig. 28), which were absent from the remainder of the series

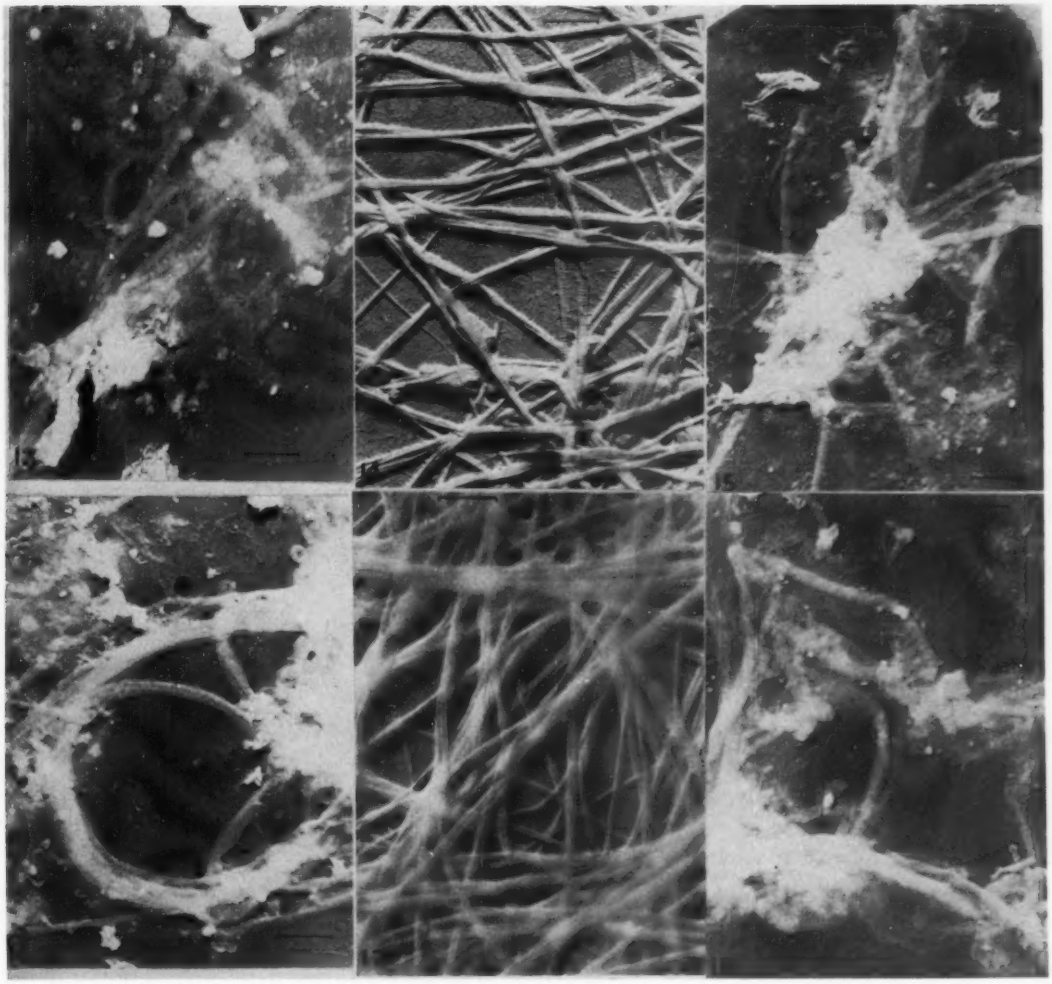

PLATE III

Fig. 13. Same experiment as Figs. 11 and 12 after grinding twelve times. The deposit was unchanged apart from a slight increase in dense bits.

Figs. 14-16. The undisturbed reaction mixture (Fig. 14) re-precipitated in the presence of purified chondroitin sulphate (CSA) b consisted of a very dense felt-work of rigid, narrow collagen fibrils 600-1,000 A° in width. After grinding three times (Fig. 15) the collagen was decreased in amount but the narrow fibrils were well-preserved though mixed with amorphous material, dense bits and scanty "elastin." After grinding twelve times (Fig. 16) the deposit was unchanged except for a moderate increase in dense bits.

Figs. 17 and 18. Comparison of replicated and ground collagen re-precipitated in the presence of CSA c. As with CSA b, the collagen fibrils were well preserved after grinding three times (Fig. 18).

and also from a repeat experiment dried at room temperature. It is possible that forming collagen has a lower shrinkage temperature than formed collagen, so that the mild heat produced was sufficient to induce the morphological picture of thermal shrinkage which is characterised by tactoidal separation and rope-like changes in the fibrils (Reed, unpublished results). This is in agreement with Brown and her associates[4] who reported that the shrinkage temperature of rabbit acid soluble collagen was low (41-45° C.).

2. The fact that the length of time the collagen

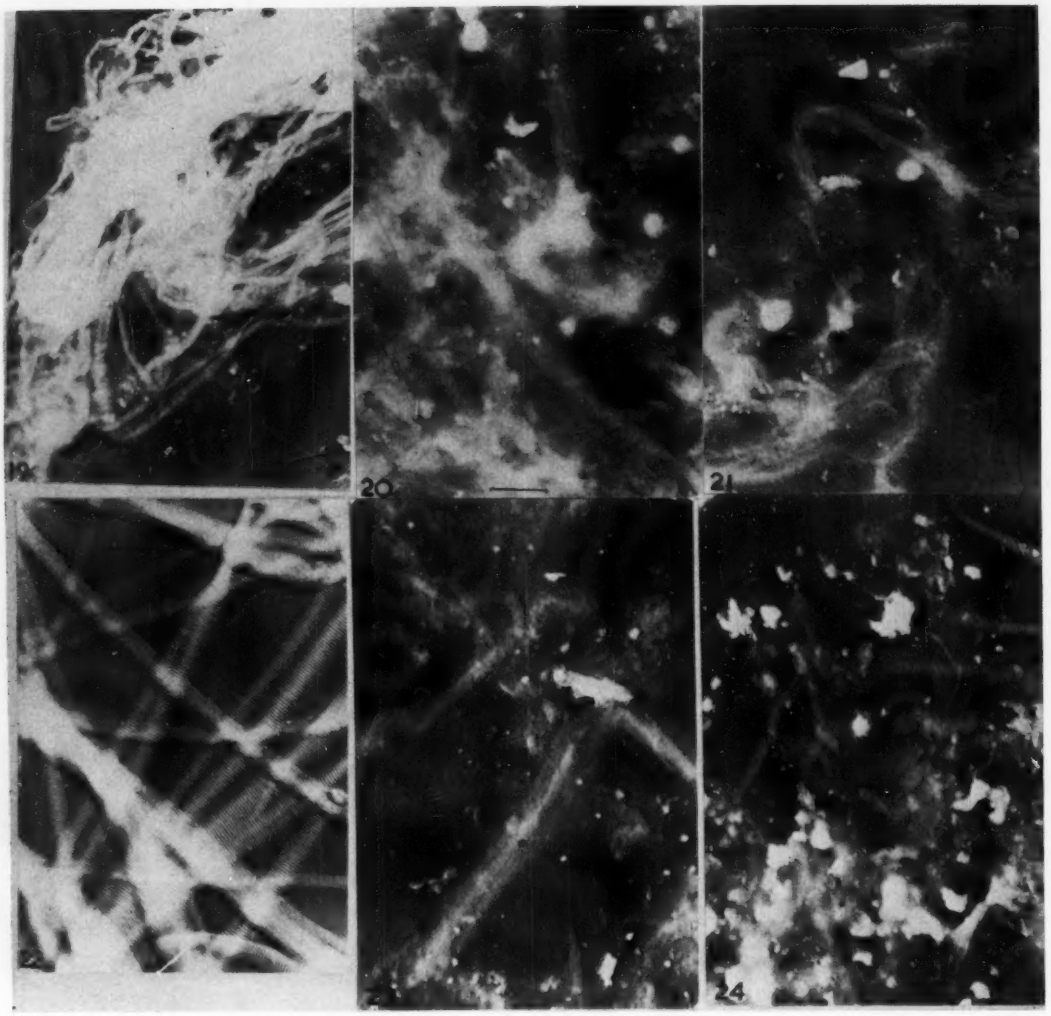

PLATE IV

Fig. 19. Same experiment as Figs. 17 and 18 after grinding twenty times. The fibrils are well-preserved and non-striated background filaments are prominent.

Figs. 20 and 21. The undisturbed reaction mixture (not illustrated) re-precipitated in the presence of 0.0005 per cent heparin, consisted of a dense network of immature collagen *(Grade 1)* with no dense bits, amorphous material or "elastin." Grinding three times (Fig. 20) rendered the collagen fibrils too degenerate to measure. They were mixed with amorphous material, scanty "elastin" and a few dense bits, the latter being increased after grinding twelve times (Fig. 21).

Figs. 22-24. The replicated undisturbed control reaction mixture re-precipitated at 21° C. (Fig. 22) consisted of a dense network of collagen fibrils 2,000-3,000 A° in width exhibiting marked lateral aggregation. After grinding three times (Fig. 23) the collagen was decreased in amount, and both striated and degenerate wide fibrils were mixed with amorphous material, a few dense bits and scanty "elastin." After grinding twenty times (Fig. 24) the deposit was unchanged apart from a moderate increase in dense bits.

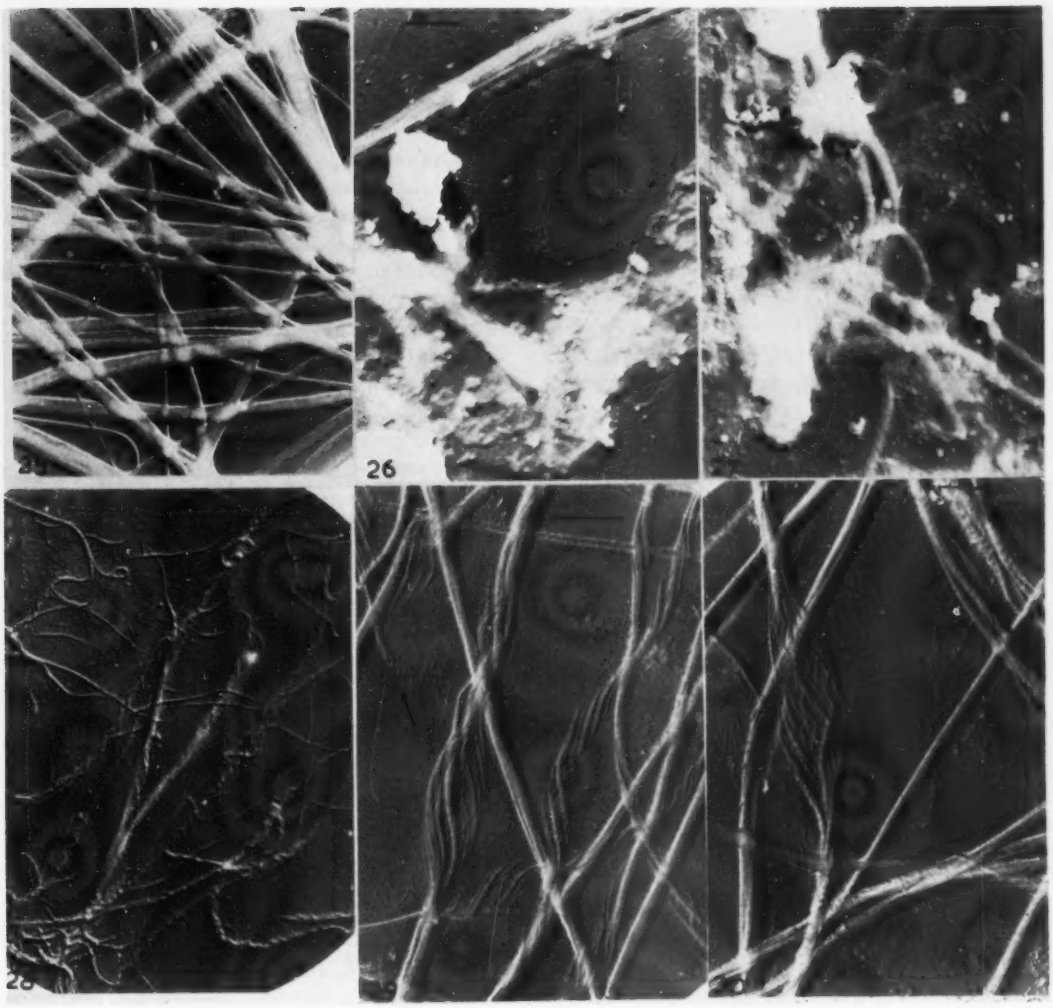

PLATE V

Figs. 25-27. The replicated undisturbed control reaction mixture re-precipitated at 37° C. (Fig. 25) consisted of a dense network of rigid, narrow collagen fibrils 1,000-1,400 A° in width. After grinding three times (Fig. 26) the collagen was decreased in amount but the narrow fibrils were well-preserved though mixed with amorphous material, dense bits and scanty "elastin." After grinding twenty times (Fig. 27) the deposit was unchanged apart from a moderate increase in dense bits.

Fig. 28. One set of reaction mixtures was dried with the hair dryer switched to "hot" before replication (see text). The non-striated background fibrils and filaments were twisted to form rope-like structures and the striated fibrils were partially separated into tactoidal components. These characteristics of shrinking collagen were absent from all the other experiments dried with the hair dryer at "cold."

Figs. 29 and 30. This replicated control reaction mixture was grossly contaminated and contained many collagen fibrils resembling un-ravelled ropes. This was presumably due to organismal attack and was not found in uninfected repeat experiments. The early stages of attack can be seen at upper left, Fig. 29 (frayed fibril ends) and upper right, Fig. 30 (arrows). The final disintegration is shown as a band of crossed filaments (lower left) similar to the crossed helical array of filaments found after collagen breakdown by acid or alkali.[21]

solution had been stored affects the rate of collagen precipitation was briefly noted by Wood and Keech.[26] Spontaneous re-precipitation of collagen occurs very slowly in extracts stored at refrigeration temperature, the rate varying from batch to batch. One collagen solution formed a macroscopic precipitate after one month at 4° C. and EM examination revealed numerous striated collagen fibrils, occurring singly or in bundles. The majority measured 1,000-1,400 A° in width, but a few narrower examples were seen.

3. The importance of using uncontaminated solutions was demonstrated by using a collagen extract that had been stored at 4° C. for two weeks, but had (unknown to the writer) become contaminated. (Unfortunately the usual antibiotic preservative could not be employed since it precipitated the DNA and RNA). The experiments kept at room temperature for nine and twenty-four hours were grossly infected so that it was difficult to find a microscopic field to photograph without organisms. The control twenty-four-hour sample contained numerous frayed fibres not seen in any uncontaminated deposit (Plate V, Figs. 29 and 30). The collagen fibrils, presumably as the result of organismal attack, appeared as unravelled ropes of component tactoids, and resembled the breakdown of collagen by acid or alkali.[21] Repeat experiments using new solutions (no organisms being seen under the EM in the twenty-four-hour preparations) did not contain any of these frayed fibres.

Interpretation of Previously Published Work In the Light of the Present Study

Untreated normal and pathological dermis and normal dermis (after various physical and chemical procedures) have been examined using grinding as the method of disintegration. "Elastin" counts have been made and particular attention drawn to the variation in fibril width and relative amounts of amorphous material and "elastin" found in various conditions.[13,15,16,18,19] In view of the fact that the present study revealed that mechanical manipulation of re-precipitated collagen produced certain artefacts, it was considered necessary to examine fresh dermis under the same controlled conditions, in order to assess the action of grinding and any influence it might have had on the interpretation of previously published work. The experiments on untreated, postmortem dermis were therefore performed and included in the tables for comparative purposes.

The present investigation demonstrates that grinding does *not* affect the basic fibril width (Table II) and, although grinding produces some amorphous material and a very small quantity of "elastin" neither of these are significantly increased after prolonged grinding (Table I). It should be made quite clear that extremes were purposely used in the present investigation and that, in previously reported work, substrates were only ground three to six times, and only rarely six to nine times (if extremely hard) but certainly never twenty times. Thus, the *comparisons* of ground materials from different sources, both as regards fibril width, the amount of amorphous material, and the "elastin" content remains valid and independent of the number of times each was ground. For example, in the work on scleroderma,[16] a marked increase in amorphous material and a higher proportion of narrower fibrils were found in the pathological derma than in normal skin from the same patients or in controls of comparable age. The controls also showed the usual variation in amount of amorphous material with age. One is therefore on firm ground in stating that the conclusions drawn from reported work using ground material still hold good providing it is realised that the technique itself produces some amorphous material, dense bits and a very small quantity of "elastin" as outlined above. It should be borne in mind that the published work employed fresh whole dermis, which resists mechanical factors far better than the soft collagen gels used in the present study. It is presumed that in the latter, a small quantity of unstable collagen had become denatured to form the tiny structures counted, whereas in fresh whole dermis the normal range of elastin structures of differing size was encountered, and the amount varied with age but not with grinding.

Summary

Comparison of two methods of preparing electron microscope specimens is reported: the morphology of the replicated undisturbed reaction mixture and after disintegration in a tissue grinder. Fresh dermis and re-precipitated dermal collagen was examined and the production of artefacts evaluated. Measurement of fibril width and counts of elastin-like structures were made after grinding the same material three and twelve or three and twenty times.

It was concluded that replication is the method of choice when dealing with the soft gels of re-precipitated collagen, since these proved very sensitive to mechanical manipulation. Although grinding produced amorphous material and a constant small quantity of elastin-like material, neither was increased by increased grinding. The basic fibril width apper-

taining to each set of experiments remained unaffected by grinding.

The vital importance of strictly reproducing every aspect of experimental technique in order to obtain comparable results is emphasised, and several pitfalls are outlined.

Previously published work is reviewed in the light of the present study. It is concluded that *comparisons* of ground samples of normal and pathological dermis remain valid in respect to fibril width and relative quantities of amorphous material and "elastin."

A correlation was observed between the morphology and the stability of the collagen fibril. Collagen from fresh, adult dermis and the long, narrow, rigid fibrils re-precipitated in the presence of CSA or at 37° C. remained well-preserved after grinding twenty times. In contrast, the short, wide, abnormal collagens re-precipitated in the presence of DNA or heparin were rendered degenerate after grinding only three times.

Acknowledgments

Thanks are due to Dr. R. Reed for instruction in the replication technique and to Dr. G. C. Wood for material from his re-precipitated collagen experiments. I am very grateful to Professor R. E. Tunbridge, O.B.E., for his sustained help and encouragement throughout this work.

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Estimation of Plasma Fibrinogen Using Sodium Sulfite Fractionation

Jesse F. Goodwin, Ph.D.
Eloise, Michigan

THE ESTIMATION of fibrinogen is useful in the diagnosis, treatment and prognosis of various conditions such as acute myocardial infarction, hepatic disorders, and gangrenous lesions.[12] A direct correlation has been noted between the sedimentation rate of erythrocytes and the concentration of fibrinogen in the plasma in rheumatoid arthritis,[11] and a decrease in the concentration of fibrinogen has been used as an indication of the effectiveness of colchicine in the treatment of chronic gouty arthritis.[4] A rapid but reliable and simple method is needed, especially if hypo- or afibrinogenemia may be present, as in obstetrical patients with gross bleeding. The purpose of this study was to devise a simple rapid procedure.

Most methods for the quantitative estimation of fibrinogen are based on the separation of the protein in plasma by clotting with the aid of thrombin,[1,18] calcium,[8,7] or both.[10] These methods are complicated because the light-floating fibrin clot must be removed from the plasma pool and washed free from interfering proteins. This step increases the time required for determination and the extra handling tends to cause some loss in protein. The required time for precipitation of the fibrin clot by thrombin has been variously reported from ten minutes[14] to nineteen hours.[5] However, one hour appears to be the minimum time necessary for complete formation of clot with thrombin.[16,17] The thrombin reagent used for separation of fibrinogen is unstable and special attention must be given for its storage, thus further complicating the methods in which it is used.

Precipitation of fibrinogen by means of salt has been proposed by Howe[6] and Campbell and Hanna.[2] The latter workers used 12.5 per cent sodium sulfite solution and 0.5 ml. of plasma. Their results compared favorably with the calcium precipitation procedure of Cullen and Van Slyke;[3] in their procedure, the addition of sodium sulfite caused a precipitate in only one of 100 sera, the serum in the one instance having been from a patient with multiple myeloma. This method has apparently not been used frequently, owing to the amount of time and effort required for the destruction of fibrinogen by said digestion and subsequent conversion of the protein nitrogen to nitrate in measurements employing Nessler's reagent. This problem is obviated in the procedure described below by using the biuret reaction in which a red-violet color appears when a cupric salt is mixed with substances containing more than one $-CONH_2$ ion or -CONH- radical in their molecules and, hence, the reaction is given by proteins. This reaction is reported to yield more accurate results than the classic Kjeldahl procedure.[13]

Reagents

Sodium Sulfite Solution, 13 per cent. Dissolve 130 gm. of sodium sulfite in approximately 800 ml. of water in a 1-liter volumetric flask at 37-40° C. and make up to volume.

Trisodiumphosphate ($Na_3PO_412H_2O$), 5 per cent aqueous solution.

Cupric Sulfate ($CuSO_45H_2O$), 4 per cent aqueous solution.

Stock Standard Solution of Protein. Dilute 25 per cent normal human serum albumin* (salt-poor) to approximately 1.0 gm. per 100 ml. with 0.85 per cent sodium chloride solution. Determine the concentration of protein either by biuret or Kjeldahl analysis. Keep the solution refrigerated.

Diluted Standard Solutions of Protein. Pipet 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0 and 9.0 ml. of the stock standard solution of protein into a 10-ml. volumetric flask and dilute to the mark with 0.85 per cent sodium chloride solution. Mix well and refrigerate.

Oxalated Tubes. Vacutainer** tubes, 7 ml. capacity, containing 20 mg. of potassium oxalate.

Dr. Goodwin is Biochemist, Department of Pathology, Wayne County General Hospital, Eloise, Michigan.

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*Division of Laboratories, Michigan Department of Health, Lansing, Michigan.

**Becton, Dickinson and Company, Columbus, Nebraska.

Collection of Specimen. Withdraw 7 ml. of venous blood, place in Vacutainer tube after removal of rubber stopper. Replace stopper on tube and mix well. This step is necessary in order to reduce hemolysis. Heparinized tubes, prepared by placing 0.5 ml. of Heparin Sodium‡ (100 U.S.P. units per ml.) into 12 by 100 mm. blood collection-tubes and then wetting the inner surface of the tubes and decanting the excess, were found to be good for this purpose.

Procedure

In a clean 15-by-120 mm. pyrex, leak-resistant, screw-cap tube calibrated at the 8 or 10 ml. mark with water, place exactly 1.0 ml. of oxalated or heparized plasma obtained by centrifugation of blood collected as outlined above. Add 9.0 ml. of 13 per cent sodium sulfite solution, mix, and stand the tube in a waterbath at 37° C. for ten minutes. A white precipitate forms which aggregates into larger masses. Centrifuge at 3,000 r.p.m. for five to ten minutes. The precipitate will collect in the bottom of the tube in a compact mass, leaving the supernatant fluid clear. Pour off the supernatant fluid and drain the tube for one minute, wiping off the last drops clinging to the mouth of the tube with absorbent tissue. Break up the precipitate by spurting in 5 ml. of the sodium sulfite solution. Place caps on the tube and shake vigorously to suspend the precipitate. Remove the cap and add 3 ml. of sulfite solution, washing down the sides of the tube. Recentrifuge, pour off, and drain the tube. (A small film of fibrin will enclose the fluid level of the tube but will cling to the wall of the tube while the wash sulfite is being decanted). Add 8 or 10 ml. of 5 per cent sodium triphosphate solution to the tube. Place in a boiling waterbath and boil until the protein precipitate is dissolved. This usually requires ten to fifteen minutes. Cool the tube in a cold waterbath. Replace the evaporated basic solution to the 8 or 10 ml. mark. Add 0.2 ml. of 4 per cent copper sulfate to the tube stopper and shake vigorously for two or three minutes. Remove the cap and centrifuge at 3,000 r.p.m. for ten minutes. Decant the supernate and read in a suitable spectrophotometer at 560 mm. A water blank is determined along with the samples.

Standard Protein Solutions. Pipet 1 ml. of the diluted standard solutions of protein containing 0.100, 0.200, 0.300, 0.400, 0.500, 0.600, 0.700, 0.800, and 0.900 gm., respectively, of protein. Add 7 or 9 ml. of 5 per cent phosphate solution, followed by 0.2 ml. of copper sulfate solution, and proceed as in determination of fibrinogen.

‡The Upjohn Company, Kalamazoo, Michigan.

TABLE I. COMPARISON OF AMOUNTS OF FIBRIN(OGEN) FOUND AFTER THROMBIN PRECIPITATION AND AFTER SALT FRACTIONATION PROCEDURES, USING POOLED PLASMA

	Grams of Protein per 100 ml.		Plasma Found by Designated Method	
Sample No.	Thrombin Ppt	Sodium 13 per cent	Sulfite 12.5 per cent	Ammonium Sulfate Turbidimetric Method[6]
1	0.594	0.594		0.487
2	0.520	0.544		0.670
3	0.460	0.480		0.430
4	0.476	0.480		0.538
5	0.370	0.355		0.492
6	0.368	0.380		0.511
7	0.500	0.490		0.740
8	0.440	0.440		0.708
9	0.480	0.478	0.500	0.583
10	0.503	0.485	0.465	0.575
11	0.480	0.460	0.425	0.603
12	0.590	0.590	0.575	0.590
13	0.490	0.490	0.490	
14	0.445	0.430	0.460	
15	0.540	0.560	0.490	
16	0.495	0.490	0.490	
17	0.565	0.560	0.565	
18	0.660	0.660	0.635	
19	0.585	0.580	0.560	
20	0.610	0.608	0.565	
21	0.612	0.617	0.585	
22	0.730	0.730	0.645	
23	0.520	0.540		
24	0.500	0.520		
25	0.550	0.570		
26	0.516	0.516		
27	0.530	0.550		
28	0.560	0.570		
29	0.480	0.480		
30	0.610	0.605		

Results and Discussion

Table I lists the comparative results of the sodium sulfite precipitation (using two different concentrations of sodium sulfite), a thrombin precipitation method, and Fowell's[6] modification of the Parfentjev turbidimetric method.

In the thrombin precipitation method the clot was allowed to form during a two-hour period after the addition of 200 NIH (National Institutes of Health) units of thrombin.[9] Calcium chloride (0.1 ml. of 2 per cent solution) was added along with the thrombin to 1 ml. of plasma in 4 ml. of 0.85 per cent saline solution. The clot was broken by vigorous agitation and centrifuged at 3,000 r.p.m. for fifteen minutes. The light-floating clot was collected and washed on a gooch crucible, size 3, fitted with Whatman No. 42 filter paper connected to a suction funnel. Both clot and paper were placed in 8 ml. of 5 per cent phosphate solution contained in a pyrex screw cap tube and the procedure carried out as outlined for the sodium sulfite fractionation method.

The values of the thrombin precipitation method and 13 per cent sodium sulfite fractionation procedure

agree within 10 milligrams in 60 per cent of the samples. The *t* value of both series (1.00) indicate that the two methods are different, but the difference between the individual values produced an error of 0 to 4.13 per cent.

TABLE II. REPRODUCIBILITY OF 13 PER CENT SULFITE FRACTIONATION PROCEDURE FOR FIBRINOGEN, USING POOLED PLASMA

Sample No.	Grams of Fibrinogen per 100 ml. Plasma Found in Replicate Specimen						
1	0.372	0.372	0.372	0.372	0.368	0.368	0.368
2	0.297	0.300	0.300	0.301	0.305		
3	0.432	0.432	0.436	0.438	0.438		
4	0.396	0.396	0.390	0.394			
5	0.432	0.432	0.437	0.435	0.437		
6	0.391	0.396	0.393	0.392	0.391		

The difference in values between the 13 per cent sulfite and 12.5 per cent sulfite fractionation methods indicate that the 13 per cent sulfite concentration is critical and must be adhered to during analyses. Preliminary determination in which the sulfite concentration was decreased to 12, 11.5, and 11 per cent caused a decrease in the amount of protein fractionated from plasma during a ten-minute period of incubation. Increasing the concentration of sodium sulfite to 13.2 per cent produced no change in the amount of protein fractionated from plasma.

TABLE III. RECOVERY OF ADDED FIBRINOGEN TO SERUM, USING 13 PER CENT SULFITE FRACTIONATION PROCEDURE

Amount of Fibrinogen Added (gms. per 100 ml.)	Amount of Fibrinogen Recovered (gms. per 100 ml.)	
	Sodium Sulfite Method	Thrombin Method
0.380	0.380	0.373
	0.384	0.382
	0.380	0.380
0.230	0.230	0.215
	0.230	0.215
	0.230	0.230
0.180	0.180	0.180
	0.180	0.170
	0.180	0.180

The ammonium sulfate turbidimetric method gave results that were generally higher than either the thrombin or sulfite procedure. However, it must be kept in mind that the formula for calculating values in this case was empirically derived, having been based on 43 estimations using a Coleman model C spectrophotometer.[6]

All measurements in the method given above were made on a Coleman Junior model C and D spectrophotometer, using pooled plasma samples left over from plasma glucose and urea nitrogen analyses.

The precision of the procedure was tested by doing replicate analyses on six different batches of pooled plasma. The results of this study are given in Table II. The standard derivation for the six series was 7.03×10^{-3}, giving a standard error of 1.81 per cent for the average of the series with a range of 2.32 to 1.60 per cent within the series.

The results of the recovery study are given in Table III. Weighed amounts of pure human fibrinogen (Parenogen)§ were dissolved in nonlipemic, nonhemolyzed whole pooled serum. Aliquots of the reconstituted plasma were analyzed by both the salt fractionation and thrombin precipitation techniques.

TABLE IV. COMPARISON OF RESULTS OF RECOVERY OF PROTEIN BETWEEN WASHED AND UNWASHED PRECIPITATES USING THE 13 PER CENT SULFITE FRACTIONATION PRODECURE

Sample		Protein Recovered (gms. per 100 ml.)	
No.	Pair No.	Washed Ppt.	Unwashed Ppt.
A	1	0.482	0.563
	2	0.485	0.567
	3	0.488	0.585
B	1	0.490	0.585
	2	0.490	0.596
	3	0.492	0.597
C	1	0.495	0.600
	2	0.502	0.604
	3	0.508	0.610

The results of this study (Table III) indicate that slight losses may have occurred in the thrombin procedure. Both methods, however, agree very well.

In an effort to determine the amount of nonfibrinogen protein occluded or adhering in the initial protein fractionation with 13 per cent sodium sulfite solution, three samples of pooled plasma were determined in three sets of pairs. One tube from each pair was allowed to drain for twenty-five minutes on clean absorbent paper and the remaining tube was carried through the regular washing procedure. The amount of protein washed out is indicated in Table IV. An error of 14.8 to 17.5 per cent was introduced into the procedure by omitting the washing.

The effect of different anticoagulants on sulfite fractionation is shown in Table V. The plasma for this study was collected from members of the department of pathology at this hospital. Evaluation of these data indicates that the type of anticoagulant is relatively unimportant for collection of blood. Better correlation was attained with these individual samples than with pooled plasma, probably because of the

§Product of Cutter Laboratories, Berkeley, California.

absence of hemolysis, and the lesser concentration of chyle and bilirubin.

The sensitivity of the procedure is increased approximately 25 per cent by having the dissolved fibrinogen react with copper sulfate in a basic phosphate medium, rather than with a mixture of diluted Weichselbaum's biuret reagent.[15,16] This increase in sensitivity is desirable in measuring small quantities of protein. The increase in sensitivity is explained by the relatively low optical density of the phosphate containing reference solution (Fig. 1).

Summary

A sodium sulfite precipitation procedure is described for the determination of plasma fibrinogen. With 13 per cent sodium sulfite solution, fibrinogen may be rapidly salted out of plasma—obtained from oxalate citrate, heparin, or ethylene-diamine-tetra-acetic acid (EDTA) treated blood. The protein concentration is estimated by the biuret reaction. The values compare well with those obtained with a more tedious thrombin precipitation procedure.

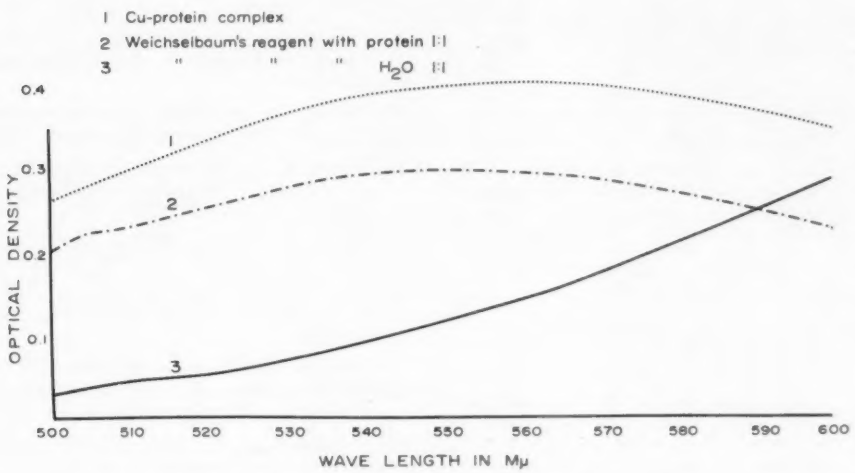

Fig. 1. Absorption spectra of the copper-protein complex.

TABLE V. EFFECT OF ADDITION OF DIFFERENT ANTICOAGULANTS IN SAMPLES OF 8 ML. OF BLOOD ON ESTIMATION OF FIBRINOGEN

Sample No.	Grams of Protein Found Per 100 ml. Plasma After Addition of Specified Amount Anticoagulant					
	Potassium	Oxalate	Disodium	EDTA*	Heparin**	Sodium Citrate
	20 mg.	40 mg.	10 mg.	20 mg.		80 mg.
1	0.300	0.303	0.298	0.300		
2	0.300	0.295	0.310	0.310		
3	0.300	0.300	0.305	0.305		
4	0.323	0.323	0.323			
5	0.337	0.337	0.335	0.335		
6	0.315	0.315	0.320	0.320		
7	0.400	0.400	0.405			
8	0.338	0.338			0.318	
9	0.365	0.365			0.360	
10	0.300	0.298			0.290	
11	0.328	0.320			0.328	
12	0.352	0.352			0.350	
13	0.348	0.346			0.348	
14	0.275	0.282			0.282	
15	0.450					0.460
16	0.345					0.348
17	0.315					0.310
18	0.340					0.343
19	0.360					0.360
20	0.317					0.317

*Ethylene-diamine-tetra-acetic acid.
**The tubes were coated with Heparin containing 100 units per ml.

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Oral Polio Vaccine Approved

After seven years of laboratory study and extensive field trials around the world, the live-virus polio vaccine developed by Albert B. Sabin, M.D., of the University of Cincinnati was selected by the U. S. Public Health Service as suitable for use in the United States.

The Sabin vaccine thus became the second polio preventive resulting from a research program paid for directly by the American public.

Following a joint project with Manuel Ramos-Alvarez, M.D., in Toluca, Mexico, Dr. Sabin reported success in something never attempted before—elimination from a large population group of certain naturally occurring viruses by rapid mass giving of live-virus vaccine.

Normally, at any given time, a high percentage of Toluca children are harboring (in their intestinal tracts) wild polio viruses. About 86 per cent of these children under age eleven were fed Sabin live-virus polio vaccine in a very short period of time. The result was that the live (but tamed) vaccine viruses literally overwhelmed the other polioviruses and the latter temporarily disappeared.

The study indicated that rapid and mass live-virus vaccine feeding may serve as a new and effective approach to disease control on a community basis.

(Editor's Note: Dr. Albert B. Sabin's paper on "Vaccines Against Polio" presented at the Michigan Clinical Institute, March 11, 1954, was published in this Journal September 1954, page 985. At that time, the Editor talked with him, and he anticipated his vaccine would soon be ready for distribution; he was already testing it. The preceding quotations were from a news release of The National Foundation.)

Symposium on the Present Status of the Clinical and Therapeutic Knowledge Of Some Rheumatic Diseases

Report by Ezra Lipkin, M.D.
Detroit, Michigan

BETWEEN October 19 and 23, 1960, it was my pleasure and privilege to attend a Symposium on Rheumatic Diseases, arranged by the Mexican League against Rheumatism, in conjunction with some members of the Pan-American Medical Association, at Ixtapan, Mexico. Represented at this Symposium were some of the outstanding luminaries in the medical profession, particularly in the field of Rheumatology. This report will perforce be a sketchy one. Nonetheless, it will attempt to convey the salient points brought out by the various speakers, and dwell upon the highlights with which the general practitioner may or may not be familiar. While a good deal of the material may be didactic, it represents the experience of the speakers, both in the clinical and laboratory fields. In spite of the general agreement as to the value of steroid therapy, there were some areas of disagreement, which made the panel discussions both provocative and vital. This report will be as objective as possible, and will, at times, give verbatim quotations of the speakers' statements. The lectures will be summarized in the order in which they were given.

The first group of lectures dealt with corticosteroids —their chemistry, physio-pharmacology and therapeutic applications—also the contraindications, complications and risks in their use. Omitting the first two papers, because of their highly technical nature, I shall begin with a review of the third paper.

Contraindications, Complications and Risks in the Use of Corticosteroids

By DR. MAXWELL LOCKIE, Head of the Department of Therapeutics, University of Buffalo School of Medicine, Buffalo, New York.

Steroids should not be used for more than fifty days. In rheumatoid arthritis, minor tissue changes are reversible, major ones, not. Major changes may go on to death.

Side Effects.—Hypercortinism—moon face, striae, acne, edema—electrolyte disturbance. *Retention of sodium* leads to edema, which can be treated with oral or intramuscular diuretics. *Potassium depletion*, as manifested by weakness, nausea, vomiting and diarrhea, and shock, can be treated by the administration of potassium chloride. Bananas have a large amount of potassium. *Disturbance of calcium metabolism*: excessive excretion causes osteoporosis. The use of milk is indicated. Estrogen and androgen must be given. There is impairment of connective tissue repair. There is produced a negative protein balance.

Principal Contraindications.—Tuberculosis (steroids may be used along with medication for tuberculosis), systemic infections, peptic ulcer, and hypertensive vascular disease.

Steroid Diabetes.—Diabetics can tolerate steroids for a long time. There is a decrease in glucose tolerance in non-diabetics.

Osteoporosis.—X-rays are not always reliable. The post-menopausal female patient must be on long-term therapy.

Peptic Ulcers.—new or reactivated—patients must be on long-term therapy. There is hazard in 25 per cent of the cases. Repeated red blood cell counts must be taken. There is a question of the value of keeping the contents of the stomach alkaline or neutral.

Stress, including Surgery.—It takes six to nine months to recover from adrenal suppression. If stress

Reporter
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occurs after fifty days of steroid therapy, additional steroids must be given.

Elective Surgery.—If a patient has had steroids, or had stopped the medication within a year, a double amount of the former dose must be given—two days before surgery, one day before surgery, and one hour before surgery. After surgery, one-half dose is given for the first day, and a quarter dose the second postoperative day.

Emergency Surgery.—300 mg. cortisone at the time of surgery, 100 mg. during surgery, 100 mg. six to twelve hours after surgery, 100 mg. the first day after surgery, and 50 mg. the second day.

Psychosis and Psychoneurosis.—About 5 per cent. Most patients clear up after discharge from the hospital. Some may require shock therapy.

Effect of Steroids on Inflammatory Tissue.—Steroids suppress inflammation. Enough cortisone must be used to carry patient over the inflammatory period. The patient may have severe surgical complications, in which antibiotics may prove ineffective. Fever of unknown origin may be due to staphylococcus infection.

Excessive Fatigue, Aching.—Such conditions may simulate flare-up of arthritis, but actually may be due to hypercortisonism. The regular administration of the drug is important, as are rest and sedation (elixir alurate). There must be a gradual decrease of steroid administration.

Peripheral Neuropathy.—This is improved when steroids are decreased.

Ecchymosis and Necrotising Arteritis.—In these many patients respond to the new types of steroid.

There is loss in body weight and mass with the administration of triamcinolone. This needs clarification.

Withdrawal Symptoms.—Withdrawal must be very gradual, to where maintenance will give help.

Steroids always help, but the physician must use great caution.

Hormone Treatment of Rheumatoid Arthritis

By Dr. Joseph Bunim, Clinical Director, National Institutes of Arthritis and Metabolic Diseases, Washington, D. C.

Instead of steroids, initial treatment for rheumatoid arthritis should include reassurance, explanation, resolving emotional conflicts, rest, correct nutritional state, analgesics, correction of deformities (physiotherapy, splints, corrective exercises). If these fail, after several months, use gold and steroids, anti-malarial agents. Steroids should not constitute the only drug. The physician should use a comprehensive program survey of patient for evidence which might contraindicate steroids, such as pertussis, tuberculosis, and peptic ulcer. The patient should be informed about the difficulty of withdrawing the drug. The physician should calculate the probabilities of the good effects of steroids. The dangers should outweigh the risks of giving steroids. Steroids cannot mobilize ankylosed joints or help atrophied muscles and fibrosis. We must be sure that the patient has a reversible disease, not an irreversible one. The side-effects may be formidable.

Indications for Steroid Therapy.—Rheumatoid arthritis which is progressive and threatens invalidism in a patient who has not responded to conservative treatment. If the course of the disease is accompanied by severe systemic disturbances, steroids are used over a short period to tide the patient over. There is not much superiority of one steroid over another. Steroids *are* more effective than aspirin.

STEROID DOSAGE

Steroid	Mg. Activity	Dosage
Cortisone	0.8	50-60 mg.
Hydrocortisone	1.00	40-50 mg.
Prednisone and prednisolone	3-4	10-15 mg.
Triamcinolone	3-4	4-14 mg.
Methylprednisolone	3-4	4-14 mg.
Dexamethasone	20-28	1- 4 mg.

Limitations of Steroid Therapy.—

1. In 40 to 50 per cent, after one year, the results diminish.

2. The difficulty of discontinuing steroid therapy—25 per cent develop withdrawal symptoms. For short duration (twelve weeks) there is no difficulty. Over twelve months, try to discontinue.

3. Steroids do not change course of disease, only suppress inflammation. ("A five-year follow-up shows this to be true"—Freyberg.) Lower amount of steroids by concomitant administration of large doses of aspirin; 3.6 gm. aspirin per day. In 75 per cent of cases, despite steroids, rheumatoid arthritis progresses.

Adverse Effects.—One of the most important effects on ulcer is size of dosage. The ulcer will heal on anti-ulcer regime. There is no telling when the patient will get an ulcer. The shortest length of time after steroid administration was three weeks—the longest, three years.

Osteoporosis.—compressed fractures—estrogen and androgen not always helpful. When intake of calcium

is increased to 1000 to 1800 mg. a day, the calcium balance is increased. We have no data on results.

Necrotising Arthritis.—polyarteritis nodosum or polyarteritis: The inflammation of small arteries is an essential part of the pathology of rheumatoid arthritis. There is an infiltration of round cells in the adventitia. With the use of steroid therapy, there has been increased evidence of patient's having polyarteritis nodosa. Try to withdraw steroid therapy in patients having such complications.

There is a relation between steroid therapy and increased incidence in complications—16 to 25 per cent.

Being bed-ridden is a contraindication to the use of steroids. Reduce dose, even if the patient is doing well.

Choline salicylate (liquid) gives best results, as far as ulcer is concerned.

Hormone Treatment of Other Connective Tissue Diseases

By Dr. Richard Freyberg, Director of the Department of Rheumatic Diseases, Hospital for Special Surgery, N. Y., Hospital Cornell Medical Center, New York.

Diffuse Collagen Disease.—"Diffuse Connective Tissue Disease" is a better term. It includes rheumatic fever, rheumatoid arthritis, lupus erythematosus, progressive systemic sclerosis (scleroderma). Other connective tissue diseases include osteoarthritis, nonarticular rheumatism, traumatic and gouty arthritis, ankylosing spondylitis.

Osteoarthritis is a non-inflammatory degenerative disorder. Steroids have little value in this condition. They give some relief in hip and spine involvement in osteoarthritis. The incidence, however, is small. It may be used, if it gives relief, but it is not to be used generally. No steroids for pain—give salicylates. If there is synovitis (through friction of roughened surfaces) in knees or hips, much benefit is derived from the use of hydrocortisone—eight to twelve weeks apart. It is useful because of its anti-inflammatory effects.

Non-Inflammatory Rheumatism.—Bursitis, tendinitis, tendon attachment syndrome, tenosynovitis, periarthritis of the shoulder, frozen shoulder, lumbago, fasciitis. Aching, stiffness, and so forth, not due to inflammation. Systemically given steroids not effective. Localized fibrositis, bursitis—local intra-articular or intrathecal injections give good relief.

Not all joint pains are due to bursitis. They may be due to tendinitis. Injection into tendons may be irritating.

Multiple injections are not advisable. In periarthritis, a short period of steroids systemically may be helpful. 25-50 mg. daily.

Shoulder-Hand Syndrome follows visceral disease—intrathoracic pathology. Steroids may be given.

Lupus Erythematosus.—We are more aware of this condition since demonstration of LE cells. The major symptoms are visceral, not only arthritic. Exclude steroids as long as possible, because they are difficult to discontinue. Systemic lupus erythematosus requires large doses and continued therapy with steroids. Chloraquin has had moderate success in some cases.

In carditis, pericarditis, pneumonitis, steroids are required, and strongly advised. Prednisone 20 to 30 mg. daily. After fourteen days, reduce to maintenance dose of 10 to 15 mg. daily. With chloraquin derivatives, reduce amount of steroids. Ulcer and osteoporosis are the chief side effects. For prophylactic purposes, use a low caloric ulcer-type diet, antacids, antibiotics, calcium, a generous protein intake. Smoking is to be discontinued. If major surgery impends, use supplementary steroids. "Lupus nephritis is refractory to steroids"—this has not been his experience. In pregnancy, the use of steroids is indicated. In the acute crisis of systemic lupus erythematosus intravenous cortisone may have to be used.

Systemic lupus erythematosus is a potentially fatal disease. For a severe condition, large doses should be given, especially for visceral manifestations, not "too little or too late."

Hormone Treatment of Rheumatic Fever

By Dr. Javier Robles Gil, Chief of the Department of Rheumatic Diseases, National Institute of Cardiology, Mexico.

The problem is unsettled. In a group of commissurotomized patients, rheumatic activity was found: without treatment 67 per cent, with salicylates 66 per cent, with hormone treatment 33 per cent. With steroid therapy, life was prolonged in severe cases of rheumatic fever.

A series of experiments was performed on three groups of rheumatic fever. The first was very active, very recent; the second, very active, not so recent; the third, not active, of long standing. All were treated with steroids—35 to 40 mg. prednisolone—for three to four months. Results: Disappearance of pericarditis under steroid therapy: Group 1, 100 per cent; Group 2, 83.33 per cent; Group 3, 40 per cent. Disappearance of manifestations of rheumatic mitral valvulitis:

	Murmur (Per Cent)	*Rumble* (Per Cent)
Group 1	55	74
Group 2	8	38
Group 3	0	0

Should rheumatic fever be treated with steroids? Yes. Steroids are very helpful in controlling the inflammatory process. We cannot predict the evolution of rheumatic fever. It should be used in:

1. Rheumatic fever, active and recent, with some manifestation of visceral involvement; it will diminish lesion, even if there is no change in the evolution of the rheumatic process.
2. Rheumatic fever, active, not so recent, with recurrences.
3. Rheumatic fever with recurrences, in long standing myocarditis.
4. Rheumatic fever, in serious cases with prolonged fever, with no apparent activity (which, nevertheless, were found to have Aschoff bodies on commissurotomy).

Steroids should be used in fulminating cases of rheumatic fever in patients, who would otherwise die of salicylate intolerance or digitalis intoxication.

Local Treatment with Corticosteroids

By Dr. Joseph Hollander, Chief of Arthritis Section, Hospital of the University of Pennsylvania, Philadelphia.

After ten years, local treatment with corticosteroids has proved a valuable addition to the therapy of rheumatic diseases. Four thousand patients were treated with 100,000 injections of steroids.

The injections must be given *into* the synovial cavity, not near it.

Indications.—Every form of rheumatic disease, except where infection exists. Hydrocortisone acetate is more effective than cortisone.

Long-term Results.—As many as 100 injections were given into one joint. The maximum was 137 injections. The interval was one week or more. Prednisolone TBA was the most consistently effective steroid.

In one hundred cases of arthritic knees, findings were as follows:

No further symptoms	59
Still receiving treatment	24
Joint deterioration	7
Too transient relief	10

After four years of intra-articular steroid therapy, thirty-eight showed no deterioration of the knees.

Two per cent of the patients showed post-injection flare-ups.

There was no evidence of loss of sensation or function.

The injections gave purely symptomatic relief and have not stopped the ravages of the disease.

Braces have been used to support weight-bearing joints.

Hydrocortisone has become established as a local adjunct to the treatment of arthritis.

Application of Corticosteroids to Other Rheumatic Diseases

By Dr. Maxwell Lockie, Head of the Department of Therapeutics, University of Buffalo School of Medicine, Buffalo, New York.

Dermatomyositis.—There is acute muscle pain, weakness, edema or rash. The joint manifestations are suggestive of rheumatoid arthritis. There is calcinosis. Fatality, 50 per cent. There is a life expectancy of three years. There is an eosinophilia, creatonuria. The electromyograph is significant. There is fascial edema. The skin has an heliotrope color. Steroids are very important in this group. It is a connective tissue disease. An early and adequate trial with steroids should be undertaken.

Polyarteritis Nodosum.—Muscle biopsy is one-third positive. Males 3:1, in the twenty to fifty year span. Medium and small calibre vessels are affected with necrosis and infiltration of media. Mimics many systemic infections. Kidney involvement, abnormal urinary findings in 89 per cent of cases. Abdominal pain in two-thirds of the cases. There is enlargement of the heart. There are arthralgias rather than arthritis. There is involvement of the central nervous system. Cutaneous manifestations are present in 35 per cent of the cases. *Diagnosis,* in a patient of middle life, is made in less than half the cases. Hematuria, peripheral arthropathy, neuropathy, positive skin biopsy, low-grade fever—these are the cardinal symptoms. There is prompt response to steroids.

Scleroderma—related to Raynaud's disease. Easy to diagnose. Alimentary canal lesions. Myocardium and lungs may be involved. There may be renal lesions. There are calcium deposits in the skin, subcutaneous tissue, fascial planes. It is more predominant among females. There is stiffness of the hands, tightness of the skin of the palms, fibrosis. The muscles contract. There is difficulty in swallowing and breathing. There are subcutaneous nodules and calcifications. The laboratory tests are negative. *Management* consists in low roughage diet, reducing phosphate intake, trial with steroids, relaxin, paba, sympathectomy.

Panel Discussions

Hormone Treatment of Rheumatoid Arthritis

Dr. Freyberg: We are unable to alter the pathology of rheumatoid arthritis in the long run. After two years, there is a structural breakdown. We cannot give enough steroids to suppress the disease, in view of the side-effects. However, the patient is substantially better over a period of months or years.

In rheumatic fever, steroids may suppress the disease entirely.

In rheumatoid arthritis, use gold preliminary to steroids after conservative treatment if patient understands the limitations of steroids. Never start a patient on steroids. If steroids are discontinued after eighteen months, we have the same return of symptoms.

Dr. Hollander: If rheumatism is decompensated, use steroids. It may be a long-term therapy in some patients. In the long run, the patient is better.

Dr. Lockie: Dr. Bunim is on the conservative side. He is an enthusiast for gold, which can do as much as any other therapy. In visceral disease—pericarditis, pneumonitis—we need steroids as life-saving.

Dr. Dorfman†: Dr. Bunim is concerned with seeming recoil from steroids. Doctors have been starting patients with too high doses. He starts with 15 mg. of prednisolone.

Dr. Bunim: I must explain the differences in results. Among investigators, there are areas of agreement, but there are also differences. Patients who are admitted to the National Institute of Arthritis and Metabolic Diseases are carefully selected; only refractory and progressive cases are admitted, and high doses of steroids must be used. Stomach x-rays are done every three months. The statistics of steroid therapy include other doctors' patients who may have ulcers. The percentage of improvement also depends upon the economic situation of the patient and on the diagnosis. Some patients improve who do not have rheumatoid arthritis. In England, because of the Health Act, the patient can be hospitalized. In the United States, the patient must have quicker results, hence must have steroids.

Dr. Gil: In Mexico, patients don't have facilities for prolonged conservative treatment. Must be rehabilitated more quickly. Rheumatoid arthritis with visceral involvement demands use of steroids.

Hormone Treatment of Rheumatic Fever

Dr. Lockie: We must give early full doses of steroids.

Dr. Bunim: Investigators get lost in academic debate in evaluating murmurs. Is damage greater at the end of one year in patients treated with steroids or aspirin? The impression that there is no difference between steroids and aspirin is erroneous. If patient on aspirin develops acute congestive failure, he is taken off aspirin and put on steroids. What is there to be lost, if we put a child with rheumatic fever on steroids for a short time (three to four months) as well as on aspirin? If steroids are discontinued, in one-half the cases there will be a rebound. But one can give more salicylates when steroids are discontinued.

Local Therapy with Steroids in Osteoarthritis

Dr. Mata: We must use supportive treatment in addition to steroid therapy. Prednisolone acetate will give a less severe local reaction than other steroids.

Steroid Therapy in Other Rheumatic Diseases

Dr. Bunim: We must treat lupus erythematosus with huge doses of steroids. Even if the patients reach state of uremia, they will still recover with steroids. Polyarteritis nodosa should not be diagnosed as negative on the basis of one slide alone. Fifty sections should be made, to rule out this condition.

Clinical Picture of Rheumatoid Arthritis

By Dr. Richard Freyberg.

The clinical picture of rheumatoid arthritis is quite familiar to the general practitioner, and will not be repeated here. We shall content ourselves with a comprehensive definition of this condition, as follows: "Rheumatoid arthritis is a chronic, diffuse connective tissue disease of unknown etiology, beginning with synovitis, going on to proliferation and destruction of cartilage and bone, causing deformity and crippling, with a variety of onset and course, both unpredictable, usually with partial remission and relapse."

Immunology and Diagnosis of Rheumatoid Arthritis

By Dr. Joseph Bunim.

The diagnostic criteria of the American Rheumatism Association for rheumatoid arthritis are: (1) morning stiffness, (2) pain on motion or tenderness in one or more joints, (3) swelling in one joint for six weeks, (4) swelling in two joints for three months, (5) swelling, symmetrical, in bilateral joints, (6) subcutaneous nodules, (7) x-ray changes, (8) serologic test for rheumatoid factor, (9) poor mucin clot in synovial fluid, (10) synovial biopsy consistent with rheumatoid arthritis, (11) biopsy of subcutaneous nodule.

A patient has classical rheumatoid arthritis, if he has seven of the above criteria; definite rheumatoid arthritis, if he has five; probable, three; and possible rheumatoid arthritis, if he has two of the above criteria.

Early X-Ray Changes.—Included in early x-ray changes are: osteoporosis (a) spotty (acute), (b) thinned cortex (chronic), (c) coarse trabeculations (intermittent); periostitis (a) inflammatory, with edema, (b) chronic tenosynovitis; erosions (a) surface, (b) pocketed; and narrowed joint spaces.

Mechanism of Agglutination.—Bentonate flocculation test is the most common serologic test for rheumatoid arthritis.

1. It is useful in differential diagnosis. It confirms the diagnosis of rheumatoid arthritis.

2. It is negative in early rheumatoid arthritis.

†Ralph Dorfman is Director of Laboratory, Worcester Foundation, Massachusetts.

3. It is intermittently positive.
4. It is independent of host response or treatment.
5. The titer parallels the full expression of the disease.
6. It has a relationship to the prognosis.

There is a positive rheumatoid factor in 80 to 85 per cent of the serologic test.

Complications of Rheumatoid Arthritis.—In patients with high titers in serologic tests, complications include: vasculitis, neuropathy, Felty's syndrome, ischemic skin lesions, and nodules.

General Management of Rheumatoid Arthritic Patients

By Dr. Joseph Hollander.

The cause of rheumatoid arthritis is still unknown; the treatment, empirical. The formula requires constants still unavailable to us. We must start with conservative measures. To this, special drugs are added. Orient patient to aggravating factors and eventual course of the disease. In the average case of rheumatoid arthritis, rest is important. The general rules in the management of rheumatoid arthritis are:

Don't promise cure or quick results.

Be as optimistic as possible.

Rest.—Emphasize emotional rest. Ten to twelve hours' physical rest daily, with afternoon rest periods. Duration of bed rest will vary with severity of the disease. Interspace rest periods with moderate activity. Frequent daily exercise periods to the point of maximum range of motion. Keep within exercise tolerance. Encourage work, if non-traumatizing to joints involved. Night pain may be relieved by analgesics or adequate exercises, casts, traction, corrective surgery.

Physiotherapy.—Physiotherapy includes: optimum bed posture, "demands of daily living" inventory, physical measures for bed patients, and measures for semi-ambulant patients.

Drugs.—Salicylates, aspirin, choline salicylate solution, darvon, rarely codeine, phenobarbital, meprobamate, iron for anemia, transfusion.

Nutritional Diet.—

Results of long-term conservative treatment: improved, fifty-three (60 per cent); stationary, thirteen (25 per cent); worse, thirty-four (15 per cent).

If the patient is severely decompensated, we may resort to crutch—steroids. If not, use gold, antimalarial (chloraquin), butazolidin. Chloraquin has proved disappointing—it is not much better than aspirin. Butazolidin is used less, because percentage of toxicity is higher than any other agent, including steroids. In gout, the incidence of toxicity with butazolidin is less.

The local use of steroids may be added. "Use oil locally where it squeaks, rather than gum up the works with oil generally, hoping it will reach the spot."

Conclusion.—"We have no cure, but much to offer the patient to relieve pain and prevent deformities. We cannot add years to life, but life to years."

Degenerative Joint Diseases—Clinical Picture

By Dr. Richard Freyberg.

There is little glamor to it. More people past forty-five have degenerative joint disease than any other. It is not primarily an inflammatory process. Most often, it is not a systemic disease. It has a local distribution of one or few joints. There is no thickening of the capsule. It is primarily a degeneration of the cartilage—at the weight-bearing portion of the joint, which is the central portion. Cartilage becomes dehydrated, clefts and fissures develop in the cartilage, the weight-bearing surface becomes rough and uneven. The cartilage becomes more and more degenerated. It is wearing out and wearing thin. Spurs develop and irritate the capsule. It is a relatively mild synovitis. There is no osteoporosis. The bone becomes calcified.

It affects chiefly people beyond forty-five. Affected are the weight-bearing joints—the knees, hips, spine. The one exception is the terminal joints of the fingers. In people doing heavy lifting, the joints are more traumatized. It comes earlier in people who are overweight, in joints that have been damaged earlier in life. Lastly, when there has been an infectious process in the joint, such as gonorrhea or a streptococcus infection. Faulty body mechanism increases stress to the joint. The patient is generally very healthy, except in one or two joints. There is an inherited structural difference when degenerative arthritis occurs in young people. Pain comes from stress on soft tissues surrounding the joint.

Degeneration of disc may lead to osteoarthritis or bony changes. In the celebrated case of the 167-year-old man from Peru, there were relatively little changes in the bony structures.

Sudden pain in the joint is not due to osteoarthritis. It is due to a break in the disc, or a breakthrough in osteoporosis, or malignancy.

Treatment of Degenerative Joint Disease

By Dr. Joseph Hollander.

First of all, reassurance is necessary. No one becomes disabled as a result of osteoarthritis. Age alone is not as important as wear and tear. Heredity is a predisposing factor, as are hormonal imbalance (menopause) and male climacteric. Most important is the wear and tear to which the joint has been subjected.

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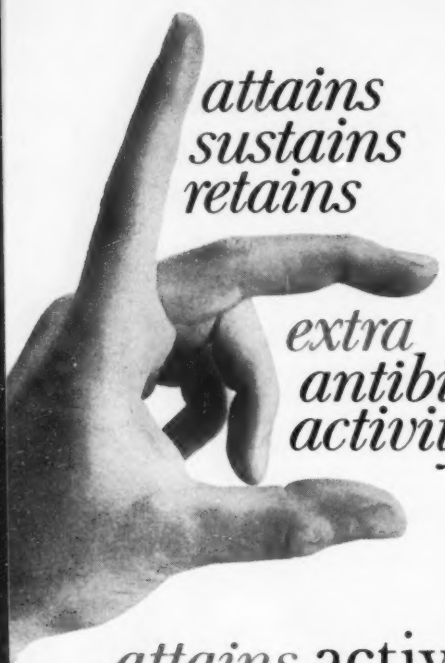

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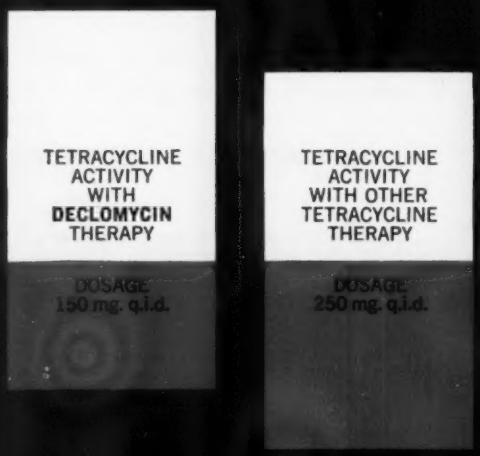
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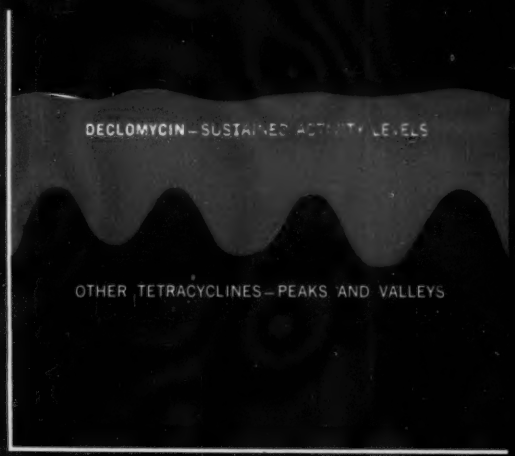

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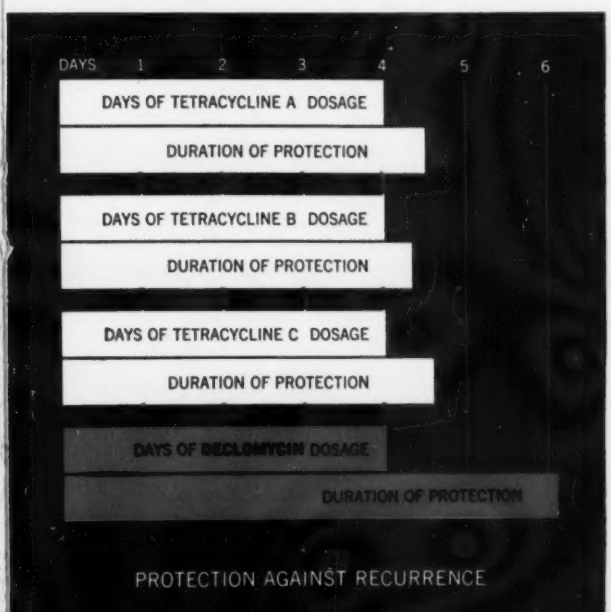
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DURATION OF PROTECTION
DAYS OF TETRACYCLINE B DOSAGE
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Overgrowth of nonsusceptible organisms is a possibility with DECLOMYCIN, as with other antibiotics. The patient should be kept under constant observation.

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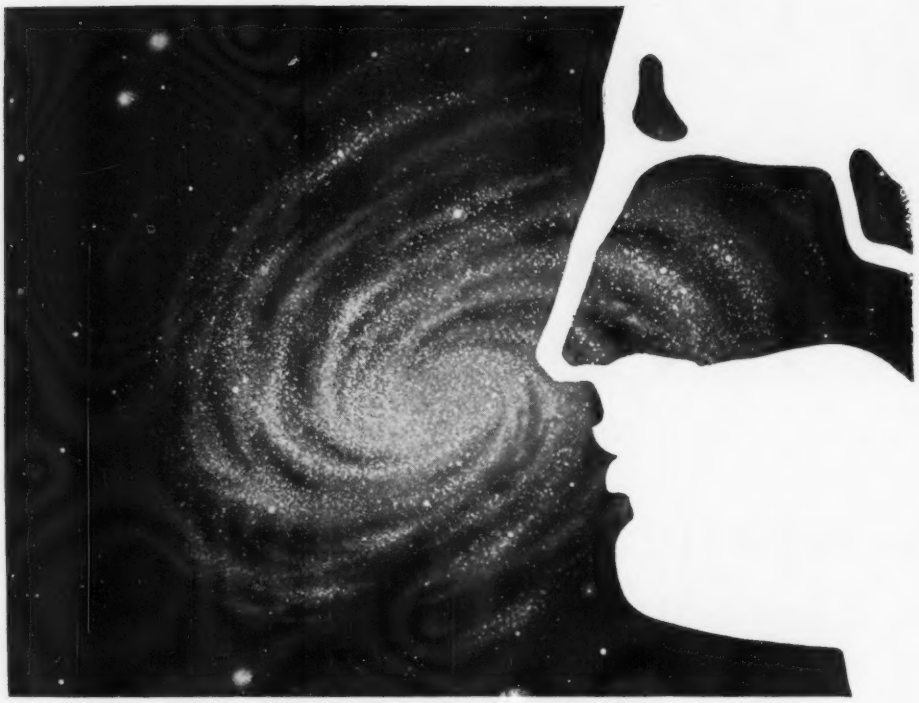

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Relief of pain—Aspirin, 10 grains, four times a day, rarely codeine. No steroids, except locally—prednisolone acetate, hydrocortisone acetate. Use heat judiciously. X-ray treatment has no lasting benefit. Cervical traction is often helpful, as is Sayer sling traction. Thomas collar is frequently used. Back-supporting corsets are important. Massage, liniment are helpful. Crutches may be necessary, elastic bandages, lifting of weights suspended from the knees, exercises with the toes. Surgical intervention is a last resort and is rare. Arthroplasty for severe and lasting pain. There may be long periods of rehabilitation. Loose bodies must be removed. Laminectomy may be needed for pressure of spurs. We cannot cure, but we can ease the condition.

The Clinical Picture of Gout

By Dr. Javier Rovler Gil.

Four hundred patients were studied: one group of poor patients, the other, office patients. Sex: female, 4.2 per cent; male, 95.8 per cent. Age during first attack—forty to fifty years. Patients at a higher socio-economic level have their first attack at an earlier age. Obesity is found more frequently in the lower status.

Race: Mexican, 92 per cent. Of these, white patients constitute 62 per cent, mestizo 23 per cent, Indian 7 per cent, foreigners 8 per cent.

Type of articular involvement: Metatarsophalangeal, only 25.4 per cent, polyarthritis 32.3 per cent, monoarticular (other than the big toe) 42.3 per cent.

Frequency of joint involvement: Big toe, 31 per cent; tarsal, 14 per cent; ankle, 19 per cent; knee, 18.9 per cent; wrist, 7.9 per cent. Each attack is more progressive.

Complications: Nephrolithiasis, 42 patients (10.5 per cent); nephropathy, twenty-five patients (6.2 per cent); chronic arthropathy, twenty-eight patients (7 per cent). Urinary sediment: normal, 38.8 per cent; moderate, 13.2 per cent, hematuria, 58 per cent.

Treatment of Gout

By Dr. Maxwell Lockie.

In this disease, proper treatment can do most good. The patient must cooperate to ward off future attacks. It is a disease of abnormal uric acid metabolism.

1. *Rest*—Gouty patients are drivers, pushers.

2. *Body Weight*—One can precipitate gout by high fat diet. Reduce weight gradually.

3. *Diet*—Eliminate liquor. Low fat.

4. *Medication*—

(a) Colchicine in 0.5 mg. tablets. Two tablets every two hours until nausea or loose bowels, then stop. Paregoric for diarrhea. Complete recovery in twenty-four to thirty-six hours.

(b) Colchicine intravenously, 2 to 3 mg. b.i.d. for one day. For emergency only.

(c) ACTH intramuscularly—40 to 100 units. One injection may abort attack. May repeat daily. May give ACTH intravenously, 20 units over an eight-hour period (in hospital), every day, if necessary, for three to four days. Along with ACTH, give colchicine two tablets daily for two weeks.

(d) Butazolidin—200 mg. every two hours for four doses. May repeat the following day, if necessary. There are no side-effects.

(e) Triamcinolone — (Aristocort) — 8 mg. every two hours for four doses—will stop acute attack. Add small doses of colchicine—one tablet two to three times a day.

To Prevent Recurrence.—

1. Mild case (less than once a year), where there are no tophi and where there is less than 7.5 mg. per cent serum urate. No wine, beer, vermouth or champagne; rest and reduction in weight. No other medication needed.

2. Moderate case (more than one attack a year), where there are no tophi, but the serum urate is more than 7.5 mg. per cent. Colchicine, 0.5 mg. b.i.d. for life.

3. Severe case (more than one attack a year), where the urate level is more than 7.5 mg. per cent and where there may be tophi. Colchicine daily, two tablets b.i.d.; Benemid 0.5 gm. b.i.d. Excretes uric acid from system, decreases size of tophi. Some tophi may disappear entirely. If benemid does not work (does not lower the uric acid level), give anturan or flexin. Use colchicine along with anturan or flexin. Diet—low fat, adequate protein, eliminate liver, kidney, sweetbreads, anchovies. Eliminate liquor. Surgery may be necessary for the thorough elimination of easily accessible tophi. The future for patients with gouty arthritis is very hopeful.

Cardiovascular Surgery for Rheumatic Fever Patients

By Dr. Genaro Pliego, Department of Surgery, National Institute of Cardiology, Mexico.

Cardiovascular surgery for rheumatic valvulitis—mitral stenosis. Must select patients for surgery.

Mitral Commissurotomy (915 cases):

Pure mitral stenosis	673 cases	(73.55%)
Double mitral lesion	242 cases	(26.45%)

Associated Valvular Lesions

Tricuspid lesion	280 cases	(36.01%)
Aortic lesions	40 cases	(4.3 %)

Preoperative Conditions

Cardiac insufficiency	129 cases	(14.09%)
Auricular fibrillation	170 cases	(19.67%)
Previous embolism	73 cases	(7.97%)
Cardiomegaly	159 cases	(16.28%)

Operative Findings

Thrombosis	121 cases	(13.22%)
In auricular appendage	66 cases	(7.21%)
Left auricle	15 cases	(1.64%)
Left auricle and auricular appendage	40 cases	(4.37%)
In pure mitral stenosis	82 cases	(12.18%)
Double mitral stenosis	26 cases	(10.74%)
Auricular fibrillation	72 cases	(41.17%)
With calcification	27 cases	(14.56%)
With previous embolism	22 cases	(30.13%)
Valvular calcification	191 cases	(21.74%)
Pure mitral stenosis	119 cases	(17.68%)
Double mitral lesion	80 cases	(33.06%)
Auricular fibrillation	32 cases	(18.82%)
With previous embolism	18 cases	(24.65%)
Subvalvular stenosis	181 cases	(19.78%)
Pure mitral stenosis	684 cases	(74.75%)
Double mitral stenosis	227 cases	(24.81%)
Normal valve	4 cases	(0.44%)

Type of Commissurotomy

Digital	665 cases	(72.67%)
Beck Maneuver	133 cases	(14.54%)
Instrumental	84 cases	(9.18%)
Without Commissurotomy	33 cases	(3.61%)

Exploratory Cardiotomy and Thoracotomy

Due to thrombosis	9 cases	(7.43%)
Due to calcification	7 cases	(3.57%)
Due to mitral insufficiency	13 cases	(5.37%)
Normal valve	4 cases	(0.43%)

Operative Complications

Auricular laceration	23 cases
Wound of left ventricle	2 cases
Cardiac arrest	7 cases
Cerebral embolism	18 cases
Peripheral embolism	4 cases
Pulmonary edema	1 case

Postoperative Complications

Rheumatic activity	150 cases
Auricular fibrillation	112 cases
Cardiac insufficiency	63 cases
Cerebral embolism	27 cases
Peripheral embolism	14 cases
Pulmonary edema	9 cases
Hemoptysis	14 cases
Pulmonary infarct	14 cases

Mortality

Number of deaths	35 cases
In operating room	6 cases
Immediate post-operative	29 cases
In pure mitral stenosis	23 cases
In double mitral stenosis	12 cases

Results

Excellent	444 cases
Good	362 cases
No improvement	41 cases
Without commissurotomy	29 cases
Normal valve	4 cases
Deaths	35 cases
Total	915 cases

From the above it may be seen that 806 out of 915, or 88 per cent, of the commissurotomy patients had either excellent or good results.

New Corticosteroids

By Dr. Gil.

Since the advent of cortisone, there have been seven modifications that increased the anti-inflammatory activities of the steroids, while there has been no diminution in their side-effects. Following cortisone, there came hydrocortisone, prednisone, prednisolone, methyl prednisolone, triamcinolone and dexamethasone. The biochemical and therapeutic properties of four new corticosteroids are now under investigation. All of these new products have marked side-effects. Following are the incidence of the most important secondary effects: Headache, 55 per cent; dizziness, 40 per cent; weight gain, 45 per cent; increase in blood pressure, 5 per cent; ecchymosis, 10 per cent; gastric hyperacidity, 10 per cent; general well being, 80 per cent; cushinoid, 20 per cent.

Summary.—The four new corticosteroids show from one to four times more anti-inflammatory activity than prednisolone. The consideration of the side-effects would not interfere with the use of steroids, if treating severely affected patients with rheumatoid arthritis.

Some Current Views on the Use of Steroids in Arthritic Diseases

By Dr. N. Oliver Rothermich, Clinical Professor of Medicine, Ohio State University, Ohio.

A basic program is essential. The local use of steroids can make the systemic therapy with steroids less necessary. Don't use steroids, if not necessary. Get by without them, if possible.

Rheumatoid arthritis is not a disease, but a syndrome. There are several different entities within rheumatoid arthritis. The progression is not the same in different cases of rheumatoid arthritis.

Steroid therapy should be used conservatively and in minimal doses.

Therapy for Rheumatoid Arthritis.—

1. Basic—Rest, salicylates, physiotherapy.
2. Steroid therapy. Desired effects—anti-inflammatory.

Undesired effects

Equivalent doses		*Sodium retention*
Hydrocortisone	20 mg.	4 plus
Prednisone	5 mg.	2 plus
Methyl prednisolone	4 mg.	1 plus
Triamcinolone	4 mg.	0
Dexamethasone	4 mg.	0

Reaction to Steroid Therapy—No patient should be started on maximum dose and then reduced. He should be started on the minimum dose and then increased. The side-effects are due to the use of maximum doses. Not more than 3 to 4 units should be given at one time. Serious ill effects do not occur on low dosage. Steroids are in ill repute. Therefore, we try to find scapegoats. Gold therapy in rheumatoid arthritis is enormously beneficial in a high percentage of cases. If the patient is in a poor socio-economic state, we must give him all we have, including steroids. Whoever is threatened with ankylosis and joint destruction must have steroids. Steroids make a big difference in how rapidly the patient gets bone destruction. Mild side-effects (moon-face, hirsutism) are really no contraindication to steroid therapy. Psychosis—two in ten years—may be treated with shock therapy while steroids are continued. Duodenal ulcer—contentions are strong, but evidence is weak. Steroids are definitely accepted as non-ulcerogenic therapy. They may produce gastric, not duodenal ulcer. "The lighting up of T.B." is correct if high doses are used. It does not occur if the patient receives a low maintenance dose and if there was no tuberculosis activity before steroids were started. Osteoporosis and fractures are a serious potential threat, but a problem only in elderly, post-menopausal and rheumatoid arthritic patients who already have osteoporosis. Even in this group, fracture is preventable if the patient is on a low maintenance dose, if he receives gonadal hormone therapy, and if he is on a high protein diet.

Private patients with rheumatoid arthritis currently on active treatment: Dexamethasone 2 mg. daily (not more than 4 mg.). It is stopped if there is an adverse fluid retention reaction and a weight gain. Dexamethasone has a tremendous effect on the appetite.

Panel Discussion

New Corticosteroids

DR. FREYBERG: Experience with new steroid compounds—15 patients, 5 months: Preparations of Dr. Gil have definite advantages: less gastric irritation, no hypertrichosis, no potassium deficiency, no edema, smooth anti-rheumatic control. Early indications favorable.

DR. LOCKIE: For rheumatoid arthritis, one must use a broad program. Gold first; if no response, steroids. Twenty-two patients on Dr. Gil's compound, 5 months. Favorably impressed. Will make report in the near future. Decreased ecchymosis.

DR. FREYBERG: Also noticed diminished ecchymosis.

DR. HOLLANDER: In treating seven or eight patients, the effects were questionable.

DR. KATONA: In thirty patients whom I saw for one and one-half years, I began treatment with 1 to 2.5 mg., then 10 to 12 mg. for suppression. Anti-rheumatic activity was three to three and one-half times that of prednisone, and more than dexamethasone. Side effects were transitory dizziness, some burning sensation in the stomach. No changes in blood pressure were evident. There was a sensation of well-being. There was an occasional Cushing syndrome. Ecchymosis in two patients was mild and transitory. This treatment was more effective and better tolerated than others. It is of great importance for the future.

DR. E. ALPER: All steroid products produce hormonal effects. All produce lymphocytosis, which give good results. Hormonal effects can be predicted.

DR. HOLLANDER: The term "side effects" is merely a matter of semantics. Should use term "hormonal effects."

DR. DORFMAN: Dr. Alper is correct. Aldosterone is one-third as effective as hydrocortisone. Is highly specific in effect on sodium and potassium. May get substance that has specific anti-inflammatory effects. Nathan Kaplan, of Brandeis University, has shown specific effects of enzyme lactic acid on liver, kidneys, spleen, muscles. There is a tissue specificity in respect to enzymes. Glycogen deposition and protein metabolism: if we can get separation, the future looks good.

DR. ROTHERMICH: The clinician will be better off if he will regard the newer drugs as pharmacological, rather than hormonal, substances.

DR. DORFMAN: New steroids depend upon certain position of the molecules, to which we add or subtract. There is little difference between effects on human and rat. The general scheme is the same, yet there is some difference, because of tissue specificity inherent in genes. Chemists supply biochemists with many compounds, which are being investigated at this time.

DR. FREYBERG: We cannot take patient off steroids. Every time a physician puts a patient on steroids, he makes a possible life-time contract with the patient to keep him on steroids. Continued therapy with the same dose will have less and less effect.

DR. ALPER: Cortisone is not as effective in joint or skin as hydrocortisone.

DR. DORFMAN: We are dealing with enzymes which differentiate between local and systemic effects of steroids.

DR. FREYBERG: We should know the entire patient, before we start treating a patient with steroids. Steroids should be used, not abused, just as digitalis, which is often abused. The steroids fail to be the last goal we are looking for.

5715 Michigan Avenue
Detroit 10, Michigan

The Need for Early Treatment Of the Rheumatoid Hand

Alfred B. Swanson, M.D.
Grand Rapids, Michigan

FROM a therapeutic standpoint "arthritic hands" are often seriously neglected. The general attitude is that, with this severe disease, crippling of the fingers is to be expected. The deformed hand should not be accepted as an eventual manifestation of arthritis. It is, rather, a hand deformed from neglect of the complications of the disease.

The basic pathology of the arthritic lesion in the hand is the same as elsewhere in the musculoskeletal system. In the hand, however, the hypertrophic synovitis that occurs in joints also occurs in the tendon sheaths and in bursae. The deformities are most often secondary to tendon ruptures, rheumatic tenosynovitis with binding down of the tendons, dislocation of the extensor tendons off the knuckles and contracture of the intrinsic musculature. Loss of the normal balance of the fingers occurs. Once the imbalance has been established, there is an increasing tendency to deformity. Hypertrophic synovitis causes further subluxation of the finger and wrist joints. The function of the hand for grasp, release, pinch, strike and hook are affected and may be completely lost. The loss of usefulness of the hand may make the patient totally dependent on others for his livelihood, and interfere with the performance of his normal daily activities.

Often the earliest manifestations of rheumatoid arthritis in the hands is spasm of the intrinsic muscles.[1] This is evidenced by inability to flex the interphalangeal joints with the metacarpal phalangeal joints extended. The metacarpophalangeal (MP) joints are usually more frequently involved in the disease process than the interphalangeal (IP) joints. There is usually the development of ulnar deviation of the fingers at the MP joints. In the normal hand, flexion and extension of the fingers is accompanied with some ulnar deviation tendency. In the normal resting posture of the hand, and especially the painful hand, the fingers are allowed to drop into ulnar deviation. With associated synovitis of the MP joints and intrinsic muscle spasm, this deformity becomes a vicious circle of imbalance. If the ulnar drift is resisted early in the stages of the disease, this deformity may be prevented. In fact, it is possible to produce a radial drift at the MP joints if the fingers are held in this position.

The wrist joint may also be involved. Palmar subluxation, flexion contracture and dorsal subluxation of the ulna may be present. The hypertrophic synovium that occurs in these joints creeps over the articular cartilage and interferes with its normal nutrition. Cartilage destruction may then ensue. The capsular structures are also loosened and stretched by the invading, swollen granulation tissue. Joints may, thus, more easily subluxate or dislocate. Tendons and tendon attachments may also be involved by the invasive synovia. This is especially true of the extensor tendons. They may become attenuated and rupture with minimal trauma. Hypertrophic bone edges, especially at the wrist, may grind away moving tendons and cause them to rupture.

Medical measures should be continued only in the acute stages and should include salicylates, phenylbutazone and steroids for their anti-inflammatory effect. Steroids, alone, will not prevent deformities and it is felt by some that the deformities are more frequent with the chronic use of these drugs.[2] Intraarticular injections of one of the hydrocortisone products may be of benefit in joints where a boggy, hypertrophied synovitis is present. The local use of steroids is to be preferred if the joint process can be localized.

Every arthritic patient should have a physical and occupational therapy regime directed to avoid de-

The Author

ALFRED B. SWANSON
M.D.

Dr. Swanson is Consultant Orthopaedic Surgery, Blodgett Memorial Hospital, Grand Rapids, Michigan.

formities of the hand. A home program of treatment should preferrably be carried out. Each patient should be his own therapist. A high level of physical activity should be insisted upon. Normal living should

Fig. 1. *(above)* Typical neglected "rheumatoid hands." Note the ulnar deviation at the MP joints with subluxation and flexion deformity. The thumb shows flexion deformity of the MP and hyperextension of the IP joint.

Fig. 2. *(below)* Destructive rheumatoid arthritic hand. Note the loss of bone and joint substance and some calcific deposits.

be encouraged. Therapy should be simple and not too time-consuming. Heat is used for its muscle relaxing, vasodilating and analgesic effect. Heat is best obtained by whirlpool or paraffin baths. In the home situation, running hot water from a faucet into a partly filled sink or pan may be used instead of the whirlpool. Paraffin baths are also relatively simply done at home. Four cartons of paraffin and one, 10-ounce bottle of baby oil are placed together in a large pan and heated slowly to the melting point (approximately 115°). The hand is dipped quickly to 2 inches beyond the wrist, repeating twelve times. The paraffin is then allowed to dry on the hand. The hand is wrapped in a heavy towel for fifteen minutes to maintain the heat. (The paraffin is removed by stripping from the skin, holding the hand over the pan so that the paraffin may be used over again). Exercises of the fingers may then be more easily accomplished. Diathermy or ultra-sound are not recommended as a source of

heat because of their possible destructive effects on attenuated tendons.

Passive stretching of fingers is to be avoided. Massage is usually of little benefit. Active exercises, frequently done throughout the day, are of the most benefit. Exercises should be designed to maintain joint motion and prevent deformity. They should include flexing the IP joints and extending the MP joints and wrist. Radially deviating the fingers, especially the 2nd finger to exercise the 1st dorsal interosseous muscle, is of benefit in preventing ulnar drift. Exercises are more easily done during the application of heat or immediately afterward. Occupational therapy exercises for active, productive motion of the hand are indicated where facilities are available.

Occasionally, dynamic bracing to stretch out deformities should be used. However, night bracing with the hand in the functional position is usually adequate. Bracing should be designed to maintain interphalangeal joint flexion and metacarpal phalangeal joint extension. Ulnar deviation and flexion deformity of the MP joints and flexion deformity of the wrist should be prevented.

Surgery

Surgery of the rheumatoid hand should be done as soon as indicated to prevent fixed deformities. Persistent hypertrophic synovia should be removed very early in the disease process before its destructive effect on joints and tendons has occurred. Tendons should be repaired when ruptured no matter what the stage of the disease. Occasionally tendon transfers may be utilized in place of direct suture of the tendons when the tendon substance is inadequate. Athroplasty and arthrodesis should wait until the burned-out stage of the disease is reached. Rheumatoid compound ganglions should be removed if they do not disappear with conservative treatment. Rheumatoid nodules may disappear, but if they mechanically interfere with function or are permanently sore, they should be removed.

Surgical Treatment of Specific Deformities

Mallet Finger.—This common deformity is due to attenuation and rupture of the extensor slip attachment to the distal phalanx. The distal IP joint goes into flexion deformity. Secondary hyperextension deformity of the proximal IP (PIP) joint may occur if the deformity is prolonged. This is due to a tendon imbalance in favor of the extensors, both intrinsic and extrinsic, at the dorsum of the PIP joint. Very early repair of the tendon insertion distally should be done. Later, a fusion of the distal IP (DIP) joint with intramedullary or cross-wire fixation may be necessary. The hyperextensible PIP joint may be treated by tenodesis[5] of the sublimis tendon to the proximal phalanx. This reinforces the stretched out palmar structures. A flexed position of 30° to 40° of this joint should be maintained.

Boutonniere Deformity.—This deformity is due to the rupture of the central slip of the long extensor to the middle phalanx. The triangular ligament holding the lateral bands together also ruptures. The lateral bands then subluxate volarward around the joint. A deformity of flexion of the PIP joint and extension of the DIP joint occurs. This deformity is extremely resistant to treatment in its late stages. Early in the process, repair of the ruptured tendon and triangular ligament may be done. Later, sectioning of the lateral bands at the PIP joint may be of some benefit. In the late stages, a fusion of the PIP and DIP joint in functional position is preferred.

Thumb Deformities.—Thumb deformities usually consist of adduction deformity of the thumb, flexion deformity of the MP joint and hyperextension deformity of the distal joint. Occasionally, subluxation and dislocation of these joints may occur. The carpal metacarpal joint is usually not involved. Fusion of the IP and MP joints of the thumb still allows for function as long as the carpal metacarpal joint is intact. Release of the adductor contracture, where present, will improve thumb function.

MP Joint Deformities.—Metacarpal phalangeal joints are usually deformed in flexion and ulnar deviation. This deformity, once established, is secondarily aggravated by the altered mechanical forces from deformed distal joints, ulnar displaced extensor tendons off the knuckles and palmar subluxation of the proximal phalanx on the metacarpals. Early removal of the hypertrophied synovia will prevent subluxation of the extensor tendons off the knuckles as well as subluxation of the MP joints.[4] Surgical relocation of the dislocated extensors will be necessary to prevent further deformity. In severe cases, an arthroplasty at the MP joint in conjunction with the synovectomy may be necessary. An osteotomy of the necks of the metacarpals in flexion may also re-establish the joint alignment and improve force couple action at the MP joint. This will improve the extensor ability at the MP joint and also improve

the ulnar subluxation tendency. Movement of the MP joints of the second and third fingers are important in pinch and grasp. The fourth and fifth fingers are mainly for hook action and the MP joints may be arthrodesed. Arthrodesis of these joints will also improve the position of the fingers as well as aid in preventing further ulnar deviation of adjacent fingers.

Wrist Deformities.—Palmar subluxation of the wrist with flexion deformity and posterior subluxation of the ulna that cannot be adequately treated by physical measures can be helped by resection of the distal ulna. Occasionally, a fusion of the proximal row of the carpal bones to the distal radius should be done.[3]

Carpal Tunnel Syndrome.—The carpal tunnel syndrome with its associated pressure symptoms on the median nerve may be treated with hydrocortisone injections into the tunnel or by resection of the carpal ligament and release of the nerve.

Tenosynovitis.—Tenosynovitis crepitans is resistant to treatment. If the process is localized and does not respond to injections and physical therapy methods, sectioning of tendon sheaths may be necessary. Snapping tendons or trigger fingers are not usually a part of the rheumatoid arthritic hand. Where they occur, they are best treated by sheath section if one to three hydrocortisone injections do not help.

Other Arthritic Lesions.—Other arthritic lesions involving the hands are not, as a rule, as destructive to function and do not require surgical intervention. Destructive rheumatoid arthritis with marked shortening of the phalanges usually does not require surgery unless the fingers are markedly unstable. In this case, joint fusion may be indicated. Gouty arthritis may be accompanied by painful deposits of urates which may be surgically removed. Psoriatic arthritis is usually associated with involvement of the distal joints and is not usually associated with severe crippling except in the late stages. Osteoarthritis affecting the hand is seldom as disabling as rheumatoid arthritis. Occasionally, a mallet finger may occur and may require surgery. Heberdeen's nodes are usually best treated conservatively, except where they are large and interfere with function.

Summary

A plea is made for the early treatment of the so-called rheumatoid arthritic hand. Emphasis is placed on the importance of specific local treatment whether it involve physical measures or surgery. It is emphasized that surgery in the rheumatoid hand may be of marked benefit in improving function. Arthritic hands are usually seen too late for simple surgery. Early surgical intervention is preferred before severe imbalance of the hand occurs.

Fig. 3. (*above*) Rheumatoid arthritic hands of patient with long-term treatment by steroids. Note mallet fingers, hyperextensible PIP joints and flexion deformities of wrist and the Boutonniere deformity of ring finger of the right hand. The finger deformities are secondary to extensor tendon ruptures.

Fig. 4. (*below*) Mallet fingers treated by fusion of the DIP joints and sublimis tenodesis of the PIP joints. Boutonniere deformity improved moderately by lateral band section.

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Potent Hypotensive Drugs

Comparative Analysis of a Ganglionic Blocking Agent and Two New Sympathetic Inhibitors in Severe Hypertension

John R. Caldwell, M.D.
Detroit, Michigan

Gunter Laubinger, M.D.
Hamburg, Germany

Klaus P. Schmidt, M.D.
Detroit, Michigan

DESPITE our various clinical successes with the rauwolfia's, thiazides and hydralazine as antihypertensive agents, treating the severer forms of hypertension still remains a difficult problem. A malignant hypertension or hypertension with complications (cardiac insufficiency, azotemia, papilledema, and the like) particularly, are often unresponsive to these agents. Although these forms of hypertension have responded to the ganglionic blocking agents of which mecamylamine (Inversine®) is most representative, the severity of side reactions to these agents—constipation, blurring of vision, et cetera — limits their therapeutic usefulness.

Recently (July 1959) reference to two new antihypertensive agents which may replace the ganglionic blockers for the more severe forms of hypertension appeared almost simultaneously in the clinical literature. One of them was bretylium tosylate (Darenthin) and the other was guanethidine (Ismelin).

Boura and associates[1] reported on the first drug and Page and Dustan[2] reported on the second. Apparently both compounds selectively inhibit the transmission of nerve impulses via the peripheral sympathetic nervous system and are sympathetic inhibitors. Both produce significant orthostatic hypotension without the more serious side effects of parasympathetic blockade. However, notable differences have been seen by us and reported by others between these two agents.

Brodie[3] recently noted that all our therapeutic efforts in antihypertensive therapy have been directed towards reducing sympathetic stimuli to the arterial wall usually accomplished by blocking or interfering with sympathetic stimuli at different sites of the sympathetic nervous system. The site of action of the two new agents as compared to some of the other commonly used compounds is demonstrated in Figure 1.

Thus we see that interference with sympathetic stimuli may occur in different places with different drugs. These include the following:

Mode of Action of Some Antihypertensive Drugs.—

1. An action upon the central nervous system is exerted by the well-known sedative and tranquilizing agents.

2. The ganglionic blocking agents (hexamethonium, pentolinium, chlorisondamine, mecamylamine, et cetera) act upon the peripheral autonomic ganglia, competing with acetylcholine, thereby preventing the transfer of the stimulus from the pre-ganglionic fiber to the peripheral ganglion cell. Since this interference takes place in all autonomic ganglia, the parasympathetic system is blocked causing undesired side effects.

3. Reserpine depletes catecholamines at the peripheral nerve endings. A similar central action upon catecholamines is debated.

4. The thiazides probably work through salt depletion. A decrease of the sodium ion would reduce the reactivity of the arterial wall to norepinephrine.[4,5] Decreased thickness of the arterial wall due to disappearance of sodium ion is also considered. Plasma volume is reduced. Finally, a direct antihypertensive action of unknown modus has been postulated.

5. According to Brodie,[3] guanethidine apparently depletes the stores of norepinephrine from the peripheral nerve endings. This may or may not be due to release or blocking of norepinephrine synthesis and remains to be determined. Bretylium on the other hand, neither releases nor blocks norepine-

From the Division of Hypertension, Henry Ford Hospital.

Inversine is a product of Merck, Sharp & Dohme; Darenthin, Burroughs Wellcome & Company; Ismelin, Ciba Pharmaceuticals.

phrine synthesis, but does seem to make the stores unavailable.

Reasons for Study and Selection of Patients.—Twenty-three patients (fourteen of whom had been on mecamylamine before) received one or both of the new agents at separate periods ranging from one to six months. The causes of hypertension varied. Sixteen of these patients had hypertension of unknown causes; four had pyelonephritis; three had renal atherosclerotic disease.

All patients had established diastolic hypertension and had failed to gain normotensive levels of pressure on combinations of rauwolfia, thiazide or in some instances hydralazine.

Our criteria for therapeutic usefulness was determined by number of tablets used, convenience of treatment, side effects, as well as achievement of satisfactory hypotensive response.

Methods of Treatment.—Patients were advised to check their blood pressure twice daily, about one hour after arising and again ten to twelve hours later. They had been instructed in home blood pressure recordings during the initiation of treatment with blocking agents in the hospital. They were instructed to omit the blocking agent, if the systolic standing blood pressure was below 120 mm. Hg just before time of dose. This had been established during the patients' hospitalization. This precaution against serious consequences of orthostatic hypotension thus provided individualized dosage of the drug. If the patient was taking basic medications (rauwolfia, thiazides and, in some patients, hydralazine), they were continued at the same dose level.

The majority of patients had been fairly well controlled on mecamylamine. However, our reason for change was specifically to eliminate mecamylamine's undesirable side effects. Changes in blood pressure levels were therefore not expected to be very striking.

Results

Twenty-three patients received either mecamylamin, bretylium tosylate or guanethidine exclusively or in combination at separate periods of time. The results of our study are presented in Table I and II. The tables give information about the age of the patient, the fundoscopic findings (KWB), the serum creatinine, and the dosage used in each patient. The degree of hypertensive retinopathy and the serum-creatinine serve as an index for the amount of vascular involvement. All patients except Case 14 had left ventricular hypertrophy by electrocardiogram and cardiac enlargement by chest x-ray. Blood pressure levels are given in sitting and standing position and represent average values of home readings taken twice daily over periods of for one or more months. Nine patients received mecamylamine originally and were given bretylium tosylate subsequently (Cases 1-9). After six months of therapy only Case 8 is still on bretylium tosylate. The patient in Case 9 developed tolerance to this drug and was switched back to mecamylamine upon his own request. The other seven patients were not well controlled on bretylium tosylate. They developed tolerance (Cases 1, 2, 5), or marked fluctuation of blood pressure (Cases 3 and 6) or annoying side effects (Cases 4 and 7—nasal stuffiness).

In two patients (Cases 22 and 23) bretylium was used as the first blocking agent. These patients have been followed for five to six months and are still on this drug. Patient number 23 shows very good control, while Number 22 seems to be developing tolerance.

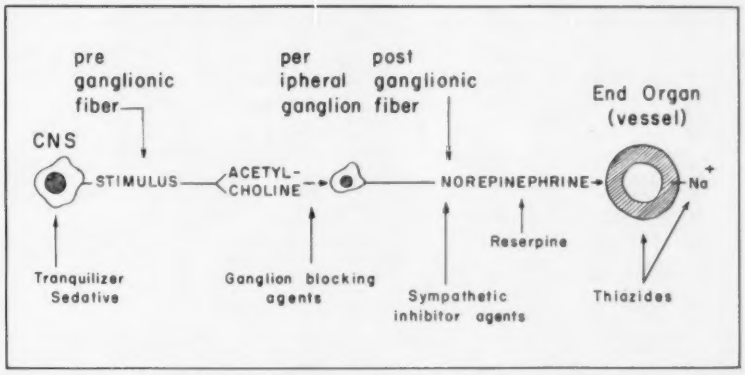

Fig. 1. Mode of action of some antihypertensive drugs on sympathetic nerve impulse and vessel wall.

TABLE I. SUMMARY OF COMPARATIVE ANALYSES USING POTENT HYPOTENSIVE DRUGS
14 Patients

No.	Name	Optic Fundus (KWB)	Serum Creatinine (mg. %)	Mecamylamine (mg. per day)	Blood Pressure Sitting (Standing)	Bretylium Tosylate (mg. per day)	Blood Pressure Sitting (Standing)	Guanethidine (mg. per day)	Blood Pressure Sitting (Standing)
1.	J.B. 46	IV	1.7	15	155-98 (138-92)	1.200	170-103 (148-97)	50	163-100 (138-91)
2.	S.D. 50	II	1.7	20	170-116 (147-109)	2.400	190-110 (177-105)	225	169-106 (157-101)
3.	H.S. 49	II	1.1	20	170-94	400	175-93	50	160-85
4.	R.S. 50	II	0.6	5	179-103 (165-103)	200	161-97 (148-94)	20	147-89 (128-79)
5.	B.W. 51	II	1.5	7.5	189-115 (177-105)	1.200	188-118 (174-108)	100	183-114 (157-103)
6.	R.Y. 41	I	0.9	1-15	177-96 (148-96)	200	191-100 (154-105)	20	186-104 (139-95)
7.	R.M. 48	II	1.0	10	140-90 (130-80)	400	163-88 (154-82)	20	173-85 (167-80)
8.	C.M. 60	II	1.0	7.5	166-96 (156-87)	1.600	166-100 (158-93)		
9.	W.L. 33	III	3.0	37.5	157-105 (124-83)	2.000	176-111 (141-94)	Changed to mecamylamine	
10.	F.C. 52	II	1.3	5	132-97 (130-95)			20	132-99 (125-90)
11.	R.L. 61	II	0.5	40	172-120 (138-102)			30	159-100 (110-73)
12.	S.M. 55	II	0.8	10	162-94 (152-88)			+2.5 Meca. 50	170-91 (158-84)
13.	H.S. 60	II	2.3	10	178-124			37.5	156-100 (140-96)
14.	C.T. 31	0	0.8	7.5	136-97 (135-96)			75	134-92 (132-90)

The average sitting blood pressure of the first group of patients (Cases 1-9) on bretylium tosylate was 164/102 mm. Hg, while the average pressures for the same group of patients on mecamylamine were 167/101. Thus indicating no significant drug difference. The average standing pressures in the same group were 157/97 for bretylium tosylate and 148/94 for mecamylamine. Again the difference is not striking, though mecamylamine seems to be more effective. However, as others have noted, patients on bretylium tosylate have often developed tolerance, fluctuation, or side effects.[6,7,8]

Seven patients were therefore changed to guanethidine. After periods ranging from one to three months, all seven have shown lower diastolic blood pressures in the standing position than on either mecamylamine or bretylium tosylate. Case 7 had the same diastolic pressure in the standing position on both mecamylamine and guanethidine.

Five other patients (Cases 10-14) were switched from mecamylamine to guanethidine. After periods of one and one-half to three months on the latter drug, their average diastolic standing blood pressure was lower than before.

Seven patients had guanethidine exclusively as their first blocking agent (Cases 15-21). These patients are very well controlled. Case 17 may probably need a higher dosage.

Profound reduction in systolic standing blood pressure especially on arising in the morning was a frequent finding. Orthostatic hypotension in some instances caused faintness and in one case, a blackout.

Comparing over-all average blood pressures on mecamylamine as compared to guanethidine the following figures: 161/97 for guanethidine and 163/104 for mecamylamine in the sitting position; 141/89 for guanethidine and 132/97 for mecamylamine in the standing position demonstrate guanethidine is more effective in reducing the diastolic pressure than mecamylamine.

We would like to mention two additional patients not included in this study. Both individuals had severe systemic disease. One patient suffered from disseminated lupus erythematosus, associated with severe hypertension and cardiac insufficiency, while under steroid therapy. Blood pressure was resistant to mecamylamine and bretylium tosylate, but guanethidine proved effective at fairly large dosages.

The second patient had diffuse vasculitis and glomerulitis with severe hypertension. This patient had also received steroid therapy. The hypertension responded poorly to all the usual drugs, but here again guanethidine caused a prompt lowering of blood pressure. Prolonged treatment had to be abandoned because both patients developed a rising blood urea nitrogen. Nevertheless, the fact that we were able to control the hypertension somewhat with guanethidine is worthy of mention, we believe. Further study is indicated since we have had considerable difficulties with blood pressure control in similar cases of systemic disease.

Side Effects.—Table III shows side effects observed on mecamylamine, bretylium tosylate and guanethidine. It clearly indicates the superiority of guanethi-

dine and bretylium tosylate over mecamylamine with reference to intolerable side effects.

Mecamylamine is known for its effect upon the parasympathetic ganglia which eventually leads to rather severe constipation. All of our patients on mecamylamine suffered from constipation. The administration of prostigmine proved useful in some but not in all cases. Other effects of parasympathetic blockade were dryness of mouth (five cases), blurring of vision (five cases) and impotence (four cases). The side effects of this drug frequently created intolerable situations which often prevented us from administering full therapeutic dose.

In contrast, bretylium tosylate and guanethidine showed markedly fewer side effects—apparently because they do not influence the parasympathetic ganglia. Sympathetic blockade, however, may produce uninhibited action of the parasympathetic system. Accordingly, diarrhea has been noted in patients taking bretylium tosylate and guanethidine. Impotentia erigendi caused by mecamylamine was not evident after patients switched to the sympathetic inhibitors, although lack of ejaculation occurred in eleven of our patients on the latter drugs. Facial pain due to bretylium tosylate, as observed by other authors, did not occur in any of our patients.[8]

An unique side effect noted on bretylium tosylate was nasal stuffiness which was present in only two cases—in contrast to a great many patients in the series reported by Boura. However, this may reflect the smaller dosage level or perhaps the concurrent use of chlorothiazide in most of our patients which may have offset the nasal congestion. This is pure speculation on our part.

Guanethidine was remarkably free from any significant side effects, although ten men had complete inhibition of ejaculation and one woman reported inability to experience a sexual climax. Diarrhea occurred in eight patients. In some of these patients, the combined use of guanethidine and mecamylamine resulted in less diarrhea with maintained normotension. Abdominal pain and diarrhea occurred in two patients on guanethidine (not shown in Table III). This was relieved by the combined use of guanethidine and mecamylamine.

TABLE II. SUMMARY OF COMPARATIVE ANALYSES USING POTENT HYPOTENSIVE DRUGS

Nine Patients

No.	Name	Optic Fundus (KWB)	Serum Creatinine (mg. %)	Pre-Treatment Blood Pressure Sitting (Standing)	Dosage (mg. Per Day)	Blood Pressure Sitting (Standing)
On Guanethidine						
15.	K.H. 42	III	1.3	169-110 (161-105)	25	148-96 (137-95)
16.	M.T. 50	II	0.6	160-109 (164-110)	25	158-95 (156-92)
17.	L.M. 41	I	1.7	178-123 (146-113)	20	145-120 (133-107)
18.	B.R. 44	I	1.3	202-119	25	152-90 (128-83)
19.	W.M. 67	IV	1.7	177-87 (176-89)	37.5	157-83 (127-72)
20.	M.L. 55	III	0.5	206-115	10	151-96 (137-91)
21.	F.H. 51	II	0.5	159-95 (157-94)	20	147-92 (137-89)
On Bretylium Tosylate						
22.	W.S. 49	II	1.1	180-117 (178-116)	600	153-107 (146-103)
23.	LU.T. 50	IV	3.0	142-100 (140-99)	200	138-100 (118-92)

TABLE III. SUMMARY OF SIDE EFFECTS

Drug	Number of Patients	Constipation	Blurring of Vision	Diarrhea	Impotence	Nasal Stuffiness	No Ejaculation*
Mecamylamine	14	14	5		4		
Bretylium tosylate	11					2	1
Guanethidine	19		1	8			10

Discussion and Conclusion

The desperate need for treating the more severe forms of hypertension, such as malignant hypertension and hypertension with complications (left ventricular hypertrophy, azotemia, papilledema, et cetera), cannot be disputed. The majority of the well-known antihypertensive drugs such as rauwolfia alkaloids, the thiazides and hydralazine (alone, or in combination)

too often are ineffective. Until recently, the ganglionic blocking agents, of which mecamylamine was our prime drug, were our only chemical compounds. However, the severity of their side reactions did not permit their full therapeutic application.

This year, two new agents which block transmission through adrenergic fibers specifically and which may replace the ganglionic blockers because they act similarly but without the disturbing by-effects have been introduced for the treatment of severe hypertension.

In order to compare and evaluate these new agents with what we consider the most effective of the ganglionic blockers (mecamylamine), we decided to make a preliminary study and analysis of twenty-three known hypertensive patients whose complete records were in our files.

Blood-pressure lowering was achieved with all three agents. On the basis of potency per mg., it would appear that mecamylamine is the most potent antihypertensive agent. However, this is of little importance when one considers the freedom from the undesirable side effects, that is, constipation induced by mecamylamine as compared to guanethidine. A few patients who did not respond to mecamylamine did so on guanethidine.

Moreover, the absence of side effects with the use of guanethidine and the potency of the drug made it possible to achieve a greater lowering of blood pressure with a smaller number of tablets than mecamylamine. A distinct advantage of the change from mecamylamine to guanethidine was the elimination of the necessity for laxatives or prostigmine to control constipation, and the simplified medical regimen.

The greatest limiting factor in the use of mecamylamine is the undesirable side effect of parasympathetic blockade. The most undesirable feature of bretylium was the need for large numbers of tablets to obtain an adequate blood pressure lowering and the fact that tolerance developed rather early in patients.

The average daily dose of the three drugs was as follows:

Mecamylamine	16 mg. per day
Bretylium tosylate	1,066 mg. per day
Guanethidine	35 mg. per day

It should be mentioned that the relatively low total daily dosage of ganglionic blocking agents or sympathetic inhibitors used in these patients with severe hypertensive disease was probably due to the concurrent use of the milder acting antihypertensive drugs.

In many cases, reserpine, ranging from 0.25 mg. to 0.5 mg. per day or whole root rauwolfia up to 400 mg. per day, hydralazine up to 400 mg. per day and chlorothiazide up to 1 gm. per day, or hydrochlorothiazide to 100 mg. a day or benzhydroflumethiazide, 10 mg. per day, were being used. To illustrate, patient L.T. (Case 18) required only 200 to 400 mg. per day of bretylium tosylate to maintain average weekly standing diastolic pressures below 90. The patient had reversed malignant hypertension (due to pyelonephritis) but had been on long-term treatment for several years with reserpine 0.5 mg. q.a.m., chlorothiazide 0.5 gm. q. 12 hr. and hydralazine 100 mg. q.i.d., so that the amount of drug used (bretylium tosylate) actually is not indicative of the total dosage of antihypertensive agent needed for satisfactory blood pressure control.

We recommend that every patient treated with any of these potent autonomic blocking agents be educated in the use of a blood pressure cuff and stethoscope. Standing systolic blood pressure as determined by the patient or a member of his family should be a guide to avoiding dangerous overdosage.

With guanethidine, adjunctive drug therapy and a patient well educated in home blood pressure recordings, the chemical control of severe hypertension can be achieved. Guanethidine is the drug of choice when rauwolfia, thiazides or hydralazine (singly, or in combination) have failed in the treatment of established diastolic hypertension.

As a result of our study, we would conclude that guanethidine demonstrates definite superiority over the other two agents—both from the point of view of therapeutic effectiveness and in the important area of lessened or innocuous side effects.

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Comparative Evaluation of Oral Cholecystographic Media

Maurice Tatelman, M.D.
William B. Steel, M.D.
Detroit, Michigan

IN RECENT YEARS several new media for oral cholecystography have been introduced, many showing distinct advantages over older media. There has thus been continuing progress and refinement in cholecystography since its first introduction in 1924 by Graham and Cole,[1] who utilized intravenous injection of calcium tetrabromphenolphthalein for gallbladder opacification. Soon thereafter the oral method was described by Menees and Robinson[2] and by Whitaker et al[3]—the former using sodium tetrabromphenolphthalein and the latter sodium tetraiodophenolphthalein.

Priodax, introduced by Kleiber in Germany in 1940[4] and quickly adopted in this country,[5] was generally considered the standard medium for cholecystography until the introduction of Telepaque in 1951,[6,7] Monophen appeared at about the same time as Telepaque,[8] and in 1953 Teridax was introduced.[9] Telepaque has generally been considered superior to all of the other above-mentioned media as indicated by various clinical trials.[6,9-12] We have used Telepaque as our standard medium from 1953 until the time of this study having found it superior to both Priodax and Teridax in our own unpublished trial series also.

In 1958 we were asked to subject a new oral cholecystographic medium, Orabilex, to a clinical trial, and at almost the same time we were also asked to evaluate another new medium, Vesipaque. The latter has been evaluated in several other countries[13-15] but has not been described in the American literature. Only one significant comparative study of Orabilex with Telepaque has been reported[16] although the initial report on Orabilex by Teplick et al[17] did include comparison of these two media in a small number of cases. There has been no report of comparative studies on Vesipaque.

Since we had already established Telepaque as our standard and most efficient medium as indicated above, we decided to conduct an adequately large comparative clinical trial of these three media. After our study was completed our attention was directed to an unmarketed variant of Telepaque, labelled Telepaque-D,[18] and we therefore added a series of cases evaluating this compound as well. A total of 656 cases was examined—214 with Orabilex, 220 with Telepaque, 128 with Telepaque-D, and 94 with Vesipaque.

Since many articles have already appeared detailing the chemical composition, toxicity, physical properties, etc., of all of the above-mentioned compounds, we shall omit these details and submit here only a table of their more important characteristics for clarity (Table I). We will refer to these compounds by their propietary names as commonly used in this country. It should be noted here that since completing this trial series we have learned that Telepaque-D is chemically identical to Telepaque—differing only in the physical method of manufacture of the tablets. Telepaque-D tablets were made by first suspending Telepaque in liquid prior to mixing with the starch vehicle of the tablet, rather than mixing dry as in the usual method of manufacture of Telepaque tablets.[18]

Method

Our standard method of administration of Telepaque, which we had used for many years, was followed in evaluating each of the contrast media. The cases to be evaluated were not selected in any way, both hospital cases and out-patients being in-

Dr. Tatelman is Professor and Dr. Steel is Instructor in the Department of Radiology of Wayne State University College of Medicine. Both are associated with the Detroit Receiving Hospital.

The Author

MAURICE TATELMAN
M.D.

TABLE I. COMPOSITION OF ORAL CHOLECYSTOGRAPHIC MEDIA

Proprietary Name (U.S.A.)	Other Proprietary Names (Europe)	Generic Name	Chemical Formula	Iodine (Per Cent)
Orabilex	—	Bunamiodyl	3-(3-butyrylamino- 2:4:6- triiodophenyl—2-ethyl sodium acrylate	57.0
Telepaque	Bilijodon	Iodopanoic acid	3-(3-amino-2:4:6-triiodophenyl—2-ethyl propanoic acid	66.7
Vesipaque	Biliodyl	Phenobutiodil	1-(2:4:6-triiodophenoxy)-butyric acid	68.2
Teridax	Baygnostil Trilombrine	Triiodoethionic acid Iophenoxic acid	α-ethyl-β-(2:4:6-triiodo-3-hydroxyphenyl)-propionic acid	66.6
Monophen	—		2-(4-hydroxy- 3:5-diiodophenyl)-cyclohexane carboxylic acid	52.2
Priodax	Biliselectan Pheniodol Bilitrast	Iodoalphionic acid	β-(4-hydroxy-3:5-diiodophenyl)-α-phenyl propionic acid	51.5

TABLE II. SIDE EFFECTS

(Total Number of Cases)	Orabilex (214)	Telepaque (220)	Telepaque-D (128)	Vesipaque (94)
	Per Cent	*Per Cent*	*Per Cent*	*Per Cent*
Gastrointestinal—mild (total)	21.0	29.0	16.5	24.4
Mild nausea only	14.0	7.0	8.0	12.8
Mild diarrhea or cramps	7.0	22.0	8.5	11.6
Gastrointestinal—moderate	4.4	20.4	32.1	20.2
Gastrointestinal—severe	0.2	2.2	5.6	6.4
Other (mild)	11.2	0.0	2.4	7.4
No side reaction	63.3	48.2	42.1	41.5

cluded. Following a fat-free evening meal, a minimum of six tablets or capsules was given with one additional tablet or capsule for each 25 pounds of body weight over 150 pounds. Films were made early the following morning and followed by fluoroscopic spot-filming, decubitus films, or other special projections as indicated if the gallbladder was visualized. If no visualization or extremely poor visualization was obtained a double dose of the same medium was given that evening and repeat roentgenograms were made on the following morning. In each case where gallbladder opacification was obtained a high-fat meal was given, followed by a final film fifteen minutes after the high-fat meal for visualization of the biliary ducts.

Side Effects

Each patient was asked about the occurrence and severity of any unusual symptoms or side effects after the ingestion of the gallbladder tablets or capsules, caution being used not to exaggerate the possibility of symptoms in the patient's mind. The relative frequency of side effects for each medium is indicated in Table II. It is apparent that Orabilex gave rise to a significantly smaller percentage of side effects than any of the other media tested, particularly in the moderate or severe range of gastrointestinal symptoms. Although mild nausea occurred considerably more often with Orabilex than with Telepaque, the reverse was true of mild cramps and diarrhea.

Of our entire series of 656 cases only one case had a severe reaction to oral cholecystographic medium. This occurred following the oral administration of six capsules of Orabilex to a seventy-six-year-old woman who experienced severe nausea, vomiting, and diarrhea the same evening and became moderately hypotensive by the following morning. It should be noted that this patient had been admitted in coma with deep jaundice and a low, unstable blood pressure, and it was therefore believed that her reaction was probably due to her already weakened, unstable condition. Recovery from the hypotension was fairly prompt with supportive treatment, and no permanent ill-effect resulted. This reaction was not considered to be due to any specific property of Orabilex but might well have occurred with any of the modern cholecystographic media.

It is again emphasized that oral cholecystography with any of the modern media is an eminently safe procedure and reactions such as the one cited above are exceedingly rare. Caution should be used, however, in administration of these media to patients who are seriously ill, especially those who are dehydrated or who already have severe gastro-intestinal irritability.

Gall-Bladder Opacification

The degree of opacification of the gall bladder was graded as non-visualization, poor visualization, good opacity, and excellent opacity. The results of this evaluation are given in Table III. The most significant figure is considered to be the sum of the percentages of good and excellent opacification, since

it is in these cases that visualization is considered to be diagnostically most accurate. Orabilex is seen to be definitely superior to Telepaque in this regard with Telepaque-D and Vesipaque being slightly less efficient than Orabilex.

TABLE III. GALL-BLADDER OPACIFICATION

(Total Number of Cases)	Orabilex (214)	Telepaque (220)	Telepaque-D (128)	Vesipaque (94)
	Per Cent	*Per Cent*	*Per Cent*	*Per Cent*
None	11.6	14.1	10.9	9.6
Poor	8.8	20.5	12.5	20.2
Good	21.4	28.2	22.7	37.2
Excellent	58.0	37.3	54.0	33.0
Total good and excellent	79.4	65.5	76.7	70.2

Bile-Duct Opacification

Visualization of the biliary ducts of some degree was obtained in about one-half to two-thirds of cases with the various media tested, with the greatest percentage of visualization of the ducts occurring with Vesipaque as indicated in Table IV. Good to excellent visualization, however, was seen in only about 30 to 35 per cent of cases and as indicated in Table IV these results were the same with all of the media used (within the limits of statistical variation).

Effect of Double-Dose Studies

We have always considered the utilization of a double dose of contrast material immediately following non-visualization or poor visualization with a single dose to be of considerable importance in obtaining accurate evaluation of the gallbladder. This opinion was borne out in this series in which a total of 135 cases received a double dose of contrast material (Table VI). Improvement in visualization with the double dose study as compared with the single dose occurred in anywhere from one-fifth to three-fifths of the cases so examined, with apparently the least effectiveness of this double dose when using Telepaque and the greatest effect with Vesipaque.

TABLE IV. BILIARY DUCT VISUALIZATION

(Total Number of Cases)	Orabilex (214)	Telepaque (220)	Telepaque-D (128)	Vesipaque (94)
	Per Cent	*Per Cent*	*Per Cent*	*Per Cent*
None	44.0	53.4	50.1	35.1
Poor	21.1	14.1	19.0	28.7
Good	19.4	17.2	17.2	25.5
Excellent	15.2	14.1	13.4	10.6
Total good and excellent	34.6	31.3	30.6	36.1
Total visualized	55.7	46.2	49.3	64.8

Bowel Opacity

The presence of residue of contrast material in the bowel, particularly in the right colon, has frequently been commented on in the evaluation of various cholecystographic media, with considerable variation in opinion as to its significance. We are including an evaluation of bowel opacities seen with the various contrast agents for the sake of completeness (Table V). It is seen from the figures in Table V that the greatest frequency and most dense residual bowel opacities are obtained with Telepaque, all of the other contrast media showing lesser occurrence of bowel residue and particularly, less dense opacities. We do not consider this of any great significance in evaluating the efficiency of the contrast media, since we have not found opaque bowel residue to be nearly so great a problem in evaluation of the gallbladder as is the presence of gas in the colon.

Summary and Conclusions

A series of 656 patients was examined for evaluation of newer oral cholecystographic media comparing our previous standard, Telepaque, with Orabilex, Vesipaque, and Telepaque-D, with the following results:

1. The lowest percentage of side effects was obtained with Orabilex and the best opacification of the gallbladder was obtained with Orabilex, Telepaque-D and Vesipaque being only slightly less efficient and Telepaque considerably less efficient. It is therefore concluded that Orabilex is the medium

of choice for oral cholecystography both as to its efficiency in gallbladder opacification and in its significantly greater freedom from side reactions. This conclusion is substantially in agreement with that of Whitehouse and Fink.[16]

TABLE V. RESIDUAL BOWEL OPACITIES

(Total Number of Cases)	Orabilex (214)	Telepaque (220)	Telepaque-D (128)	Vesipaque (94)
	Per Cent	*Per Cent*	*Per Cent*	*Per Cent*
None	20.2	12.2	24.3	27.6
Faint	50.0	25.0	46.1	32.9
Moderate	25.5	26.2	23.6	31.9
Dense	4.4	36.4	5.6	7.4

2. The degree of opaque residue in the bowel is considerably greater with Telepaque than with the other media but this is not considered to be a factor of any great significance.

3. The percentage of visualization of the biliary ducts is not sufficiently different with the various media tested to be considered an important factor.

TABLE VI. EFFECT OF DOUBLE DOSE

(Number Given Double Dose)	Orabilex (38)	Telepaque (34)	Telepaque-D (40)	Vesipaque (33)
	Per Cent	*Per Cent*	*Per Cent*	*Per Cent*
Non-visualization	55.6	58.8	32.2	21.6
No improvement	7.8	5.8	20.0	12.2
Improved visualization	36.6	35.4	47.8	66.2

4. Double dose studies may be needed with any contrast medium, the effectiveness probably varying more with the individual case than with the medium employed.

5. Telepaque-D, though chemically identical to Telepaque, seems to be superior to it as regards gallbladder opacification and absence of bowel residue. Side effects are almost identical with the two. The difference in their efficiency may be due to the physical method of suspension of the agent, possibly permitting better absorption of Telepaque-D from the intestine.

Addendum

Since the completion of this survey, Orabilex has been adopted as the standard cholecystographic medium at Detroit Receiving Hospital and during the past 18 months approximately 2200 oral cholecystograms have been performed with this medium with no significant side reactions and with the same general results as had been described in this article.

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Functional Bleeding—A Metabolic Disease?

Bernard Levine, M.D.
Oak Park, Michigan

FUNCTIONAL uterine bleeding has been one of the more confusing problems in gynecology. This may be so because we have not focused our attention on a new concept and its possible relationship to this disorder. Evidence is accumulating that functional bleeding may be a manifestation of a specific biochemical deficiency of metabolic significance. Our shortcoming has been that we have always considered the action of female hormones to be directly on the end organs. We have given no consideration to intermediary mechanisms. Yet, current investigations indicate that enzymatic intermediary reactions play a very significant role in endometrial cellular reproduction.

Since the development of methods for the demonstration of alkaline phosphatase in tissue sections, the presence of this enzyme in the endometrium has become well established. Quantitative histochemical studies indicate that the presence and activity of this enzyme is not constant throughout the menstrual cycle. It is also known that the enzymatic activity is highest during the proliferative phase and is reduced during the secretory phase and disappears completely before menstruation. The effects of the steroid sex hormones on alkaline phosphatase in the endometrium has also been noted. Estrogen produces a marked increase in the phosphatase activity in the epithelium of the endometrium, which effects are not duplicated by either progesterone or androgen. Further, a direct relationship exists between the amount of estrogen present and the degree of enzymatic response. Prolonged estrogen administration causes additional phosphatase deposition and intensifies the enzymatic activity. It is known that histologically, prolonged estrogen administration produces hyperproliferation of the endometrium. It is important to note that this enzymatic activity is synchronous with the other morphological changes produced by estrogen on the endometrium. By these facts, it is most probable that the cyclic variation in the enzymatic activity of alkaline phosphatase and in tissue proliferation, is related to the cyclic variation of estrogen production. Thus, there is a relationship established between the amount of estrogen, the amount of alkaline phosphatase, and the amount of tissue growth in the endometrium. Attention is also called to the coincidental appearance of alkaline phosphatase in the endometrium and the deposition of glycogen. This suggests that there is the simultaneous integration of estrogen, alkaline phosphatase, and deposition of glycogen confined to a period of extremely active endometrial growth.

This association between alkaline phosphatase, estrogen, glycogen, and cellular growth is not peculiar to the endometrium alone. Investigators have established that alkaline phospho-monoesterase is an invariable concomitant of normal bone formation. Histochemical techniques have corroborated these findings. Glycogen and phosphatase are not only present together in tissues which calcify, but no calcifying tissues are devoid of either of these substances. It is thus concluded that alkaline phosphatase and glycogen play an essential role in the process of calcification and bone growth. Likewise, the role of estrogen in calcification and bone growth is well known. This is exemplified by the greatly advanced bone age in female infants with abnormally high estrogen levels as in granulosa cell tumors. Thus we can see that if phosphatase and glycogen are indispensable to bone growth and calcification and estrogen promotes this same physi-

Dr. Levine is attending obstetrician-gynecologist, Highland Park General Hospital, Highland Park, Michigan; Sinai Hospital, Detroit, Michigan; Beaumont Hospital, Royal Oak, Michigan.

The Author

BERNARD LEVINE

M.D.

ological activity, then it must do so not directly, but through some intermediary process in its relationship with alkaline phosphatase.

In the kidney, phosphatase has been found most highly concentrated in the proximal convulted tubules —exactly in conformation with the hypothesis that phosphatase is concerned in glucose resorption, since resorption has been shown to occur only in the proximal tubules. Tubular phosphatase has been discovered in representatives of all vertebrate classes with one significant exception—the aglomerular toadfish, *Apsanus Tau*, which can neither excrete nor secrete sugar. The conclusion that alkaline phosphatase is part of the glucose resorbing mechanism is inescapable.

Other researchers state that it is generally agreed that a phosphyorylating intermediary is a necessity for glucogenesis. The transformation of hexosephosphate into glycogen requires the presence of a phosphate splitting enzyme. Of the various enzymes capable of such action, alkaline phosphatase has been invoked because of its ubiquitous occurrence and because of its demonstrated capacity to utilize the particular substrates which serve as intermediates in carbohydrate metabolism. Further, the hypothesis that phosphatase is found in tissues in regions supervening between the source of sugar and the location in which glycogen deposition is occurring has been adequately demonstrated to be correct. In the uterus, a region containing phosphatase is invariably interposed between the blood stream and the locality in which glycogen is deposited. It is also noted that the dephosphorylation of hexosephosphate by alkaline phosphatase is a necessary antecedent to glycogen formation. The effect of estrogen in raising blood sugar levels and liver glycogen is also noted.

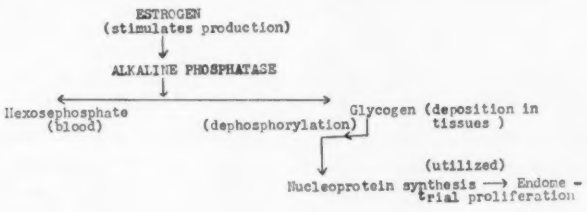

Fig. 1

From the aforementioned evidence, it becomes plausible that the appearance of increased alkaline phosphatase in the endometrium is not coincidental, but represents a specific function of estrogen. Also, endometrial proliferation is not the result of direct estrogen action, but rather is mediated through this enzymatic system. The mechanism is suggested in Figure 1.

This mechanism suggests a corollary that estrogen has an effect only on tissues in which alkaline phosphatase is demonstrated. There is evidence suggestive that this is true.

The knowledge of the biochemical role of alkaline phosphatase is certainly deficient, but its extreme importance as an enzyme in endometrial cellular reproduction is becoming apparent. As more information becomes known about its exact role in this process, it is probable that the symptom which we have been calling functional uterine bleeding will in reality be found to be an enzymatic metabolic disorder. The defect may stem from an over accumulation of substrate that ordinarily is converted into other substances by the enzyme, or that an abnormal enzyme is manufactured by the patient. In any event, it is now clear that a better understanding of endometrial growth and menstrual disorders is dependent on an elaboration of our knowledge of the significance of alkaline phosphatase.

ORAL CHOLECYSTOGRAPHIC MEDIA

(Continued from Page 360)

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Care of the Aging

Before and since the inauguration of President Kennedy, the most prominent topic in newspapers and magazines and of radio announcers is the care of the aging. Through its House of Delegates, the Michigan State Medical Society has taken a stand and outlined a position of private medical service on this subject. The American Medical Association has done the same.

On every hand doctors are subject to comments, criticisms and accusations, alleging that over 16 million "over 65" persons are without medical care in their years of need. These facts and figures have been corrected innumerable times but they are still being repeated.

During the campaign, Mr. Kennedy criticized the general tax measure under which the "over 65" are now eligible for care—the Kerr-Mills bill. This bill provides that persons under a specified income limit or in case of distress may have special attention, the government paying part or sufficient amount to give them care. The federal government gives matching funds from the general treasury. State and county funds also come from the local tax funds. This puts the care of the needy and aging specifically on general taxation where it has always been. This is no change in philosophy but it is a definite change in amount of care and availability of it.

Mr. Kennedy offered his plan putting health care of the aging under Social Security which he said was not a tax. This, he said, would remove these people from the tax load. His plan, the Forand-type plan, puts all beneficiaries of Social Security under hospital and medical care and under what "is not tax or insurance."

Social Security is definitely an accepted and valuable means for caring for the dependents, widows, orphans, et cetera, of those who have carried the Social Security program. The amounts are specified very distinctly and come from compulsory deductions from wages from almost everybody in the country except the medical profession. This deduction applies to the first $4,800 earned with no deduction for anything. It takes the percentage from the first dollar to the 4800th dollar for the purpose for which it was intended. We are willing to concede its justification as a basic income for the retiree but when it comes to taking care of the health of all the retired and aged persons including those who were never under Social Security, it is a very unfair tax. Moreover, no one has questioned that the Social Security system is sound fiscally or actuarially.

Social Security Tax

Medical and health care of the aging and needy is an essential program. It has always been accepted and administered in various ways. To load that whole group on the low income people is completely unfair and that is exactly what is proposed. Income over $4,800 is not taxed or assessed or withheld for Social Security. The higher income people who are the ones most able to help in the care of the needy are exempted under Kennedy's plan.

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The Kerr-Mills bill (the AMA-supported plan) takes care of these people using general taxes, much of these taxes coming from the higher incomes. Social Security has great promise, but it was never intended to take on this extra load. If general medical and health care of all over 65 should be adopted by the federal government, we must anticipate those rates, instead of being a quarter of 1 per cent as suggested, will be multiplied 100 times at least. That happened in Germany and other nations where this compulsory health program is in operation.

Another Insurance Rate Adjustment

On January 10, 1961, Michigan Blue Shield and Michigan Blue Cross both filed for rate adjustment with the State Insurance Commissioner. The immediate result was a blast from the press, from labor, and from the Insurance Commissioner claiming he was receiving hundreds of letters protesting against the rate increase, and not one for it.

About a year and a half ago Blue Shield filed a rate adjustment of 19.5 per cent to meet extended benefits, increased utilization and costs. The Commissioner held public hearings and on July 1, 1960, authorized an increase of 11.5 per cent with specific instructions: Blue Shield was to come up before July 1961 with a definite program to eliminate all abuses, to answer criticisms, and to supply a program which could give the services required with a guaranteed rate to last two years. He should not have been surprised when this new request came because it was ordered by his department and his own letters of authority.

Five Years—No Help

In 1955, Michigan Hospital Service asked for a rate increase, not Michigan Medical Service. Many interested persons registered their protest and the Governor decided to appoint a Commission not only to study Blue Cross, but also Blue Shield (which was only involved by association), "to determine how better and more complete service could be rendered for less money." This commission started work on February 13, 1956, and continued until April 26, with almost daily reports in the public press—front page articles, and so on.

The Commission finally reported that it could not answer the problem and recommended a study be done at the University of Michigan by suggested experts. After some time negotiating and searching, the Kellogg Foundation agreed to finance the program up to $382,000. A study was started which involved many visits and much searching of the Blue Cross and Blue Shield records, attending Blue Cross and Blue Shield meetings, etc. The report was promised for not later than May 1959. Before that study was available it became necessary for Blue Shield to have a rate increase which was requested, delayed and finally granted in 1959, but the amount was cut very seriously and was inadequate.

The inadequacy of that rate brought the request a year and a half ago which resulted last July in an increase of 11.5 per cent. The 11.5 per cent was less than was requested. Two appeals have been necessary for increased rates since that Governor's Commission study was started. This is the second request *since that report was promised.*

The Michigan State Medical Society, Michigan Medical Service, Michigan Hospital Association and Michigan Hospital Service, all agreed with the purposes and concepts of this study, have cooperated in every way possible, hoping the report might determine if there are faults or imperfections in the two plans or what is necessary to make them better. Both have made their own studies and believe there are no radical imperfections.

The constantly increasing costs of everything—living, wages, salary, and the vastly extending quality and extent of hospital and medical service has been responsible for most of the increases which have been requested. The study growing out of the Governor's commission should be available. What has become of it? The Blue Plans for whom it was invoked and the public service corporations caring for the life and health of our citizens should be allowed to see these reports. Senator McNamara and some representatives to the President's Conference on Aging workers had them and quoted from them. Michigan Medical Service auditors and actuaries said four years ago that the rate set up at that time, if it had been granted, would carry through for years, the same as the original rates for 1942 carried for 12 years.

It is hoped the Commissioner, this time, will grant the full request. This one is guaranteed by the actuaries to last two years if granted in full. At the end of that time an increase corresponding with the Department of Commerce cost of living would probably carry it through. It would be very interesting to tie the cost of living to the rate for these Blue Shield programs.

Thank You!

This number of THE JOURNAL is devoted to Rheumatism and Arthritis, and we are indebted to J. J. Lightbody, M.D., of Detroit, for his tireless assistance in assembling the material offered.

Guest Editorial

Clinical Laboratories—How High the Cost?

Recent publicity about use of commercial laboratories should serve to warn us of the responsibilities of the physician to his patient when ordering laboratory tests. "Larceny in the Labs" (*Time*) and "The Deadly Mistake" (*Newsweek*), both appearing in the October 24 issues, deal with the appalling situation in New York City, where 75 per cent of a sampling of 130 laboratories erred on simple blood groupings. Lay laboratories offering inducements such as flat-rate service have been found running laboratory "production lines" with little or no attempt at maintenance of professional standards.

What is the situation in Michigan? Recently there has been an active solicitation of practicing physicians by certain non-physician clinical laboratories. In some of the printed material there are statements implying that the services of pathologists are available through these laboratories. The Michigan Pathological Society has unanimously reiterated its opposition to such a liaison. Furthermore it feels that *no* physician should be associated with a lay laboratory under arrangements which tend to interfere with or impair the free and complete exercise of medical judgment and skill or tend to cause a deterioration of the quality of medical care.

A major attraction proposed by the lay laboratories is lower cost per test. The College of American Pathologists Code of Ethics specifically states that pathologists shall not compete for laboratory services on the basis of fees; much study and research has been spent by members of the Michigan Pathological Society in preparing a recommended list of fees which can serve as a guide for setting laboratory fees to conform with local situations. Is the cost of using lay laboratories really low? What is the *real* cost? Is it economy to jeopardize the patient? Is it economy to imperil the free practice of medicine by forcing further restrictive legislation upon us all? And is it economy to deal so lightly with the physician-patient relationship?

Pathologists not only take formal training in the supervision of clinical laboratories, they are, for the most part, actively participating in continuing programs of education in order to keep abreast of advances in this field. They consider clinical pathology an integral part of the practice of medicine. Don't you?

PUBLIC RELATIONS COMMITTEE
Michigan Pathological Society

AMA for All M.D.'s

I believe every physician in this country—practicing or not—should be a member of the American Medical Association.

By this I mean that every doctor should have a full voting membership. Although the AMA numbers almost 179,000 members, there are approximately 20,000 physicians who, in my opinion, should be members of the association but are not.

The problem of how to get all physicians active in the AMA is one that has worried us for some time. We like to think that the AMA is for all doctors of medicine, and it certainly should be.

As you know, membership in the AMA demands membership in the local medical society. Only government-employed physicians are exempt.

Some of the recommendations to the House by the Board of Trustees, which I strongly support, are:

—State and county societies should grant membership to physicians holding licenses in any other state, as well as to those physicians whose activities do not demand licensure.

—Constitution and bylaw provisions which restrict voting membership to private practitioners should be repealed, along with any requirements imposing long-term residency.

—Programming should be re-evaluated so that medical society meetings will interest and attract non-practicing as well as practicing physicians.

The increase of the number of physicians not in private practice has paralleled the climbing proportion of medical care which is being administered by physicians not in private practice.

This influence is not confined to physicians in government; it can also be seen in certain developments.

1. The steadily rising number of physicians in hospital service.

2. The recent policies of medical schools which call for an increase of full-time faculty personnel.

3. The employment of physicians by consumer and labor-sponsored plans and the slow but consistent growth in the number of these plans.

4. The employment of more physicians by industry and the expansion of occupational health programs to include both preventive and treatment services.

Therefore, the number of physicians who are not in private practice is a large, growing, and influential portion of the physician population.

My sole desire is to attract *all* physicians into the medical societies. To do this, we must retain our leadership in the scientific field and gain leadership in the socio-economic field.

E. VINCENT ASKEY, M.D.
President American Medical Association

Reprinted from J.A.M.A., Vol. 174, No. 14.

Michigan State Medical Society

Annual Session of The Council

January 26-28, 1961

HIGHLIGHTS

All members of The Council were present at the Annual Meeting in January, except one detained by illness. Guests included Michigan Health Commissioner A. E. Heustis, M.D., Lansing; Michigan Medical Service President G. Thomas McKean, M.D., Detroit; C. J. Tupper, M.D., of Ann Arbor, representing the Dean of the U-M Medical School; Gordon H. Scott, Ph.D., Dean, Wayne State University School of Medicine; L. Gordon Goodrich, MMS Executive Vice President; Peter G. Klein, representing Michigan Hospital Service; Mr. Joseph Miller of the American Medical Association (Field Representative).

One hundred forty-two (142) items were presented to The Council, chief in importance being:

- Secretary's Annual Report was approved (see page 369).
- Treasurer's Annual Report was approved (see page 372).
- Editor's Annual Report was approved with commendation (see April JOURNAL).
- Reports of the County Societies Committee, the Finance Committee and the Publication Committee, all Standing Committees of The Council were approved, as amended by the Reference Committees.
- Auditor's report for the year 1960, and the Budgets for the year 1961 were thoroughly considered and approved (see pages 372-378).
- Elections: Secretary D. Bruce Wiley, M.D., Utica; Treasurer W. A. Hyland, M.D., Grand Rapids; Editor Wilfrid Haughey, M.D., Battle Creek, were re-elected for the year 1961.
- Progress Report on Michigan Hospital Service (Blue Cross) was presented by Mr. Klein in behalf of MHS President John N. Lord.
- Progress Report on Michigan Medical Service (Blue Shield) was presented by President McKean.
- Recognition of Medical Assistants. Upon suggestion of Advisory Committee to MSMAS, The Council authorized The Journal Editor to recognize in JMSMS the contributions made by the Michigan State Medical Assistants Society.
- M.D. Teenage Clubs. The Council took action to encourage every component society to promote medical students' clubs in high schools, junior colleges and colleges, and requested the appropriate committee to further this and similar methods for the recruitment of high grade medical students.
- The Finance Committee recommended the following policy covering travel by MSMS officers, members of delegations and committees, and personnel: MSMS shall pay transportation allowance not to exceed the cost of first class travel to and from destination by a plane or train plus actual hotel and meal expense for all meetings authorized by The Council; state and local travel by car is to be paid at the rate of $.08 per mile, as in the past. This policy was approved by The Council.
- Progress report on new MSMS headquarters building was presented by President Kenneth H. Johnson, M.D., of Lansing. A move into the new headquarters in April is planned.
- Recent Memorial Gifts have been presented by Mrs. L. Fernald Foster of Detroit, and by the family of the late Ralph W. Shook, M.D., of Kalamazoo. Also presented was a gift of $1,000.00 by Doctor and Mrs. W. S. Jones of Menominee. W. M. LeFevre, M.D., of Muskegon is working with architect M. Yamasaki in sculptoring a master mold for the bronze-colored aluminum medallion to be installed over the front entrance of the new building, between the central columns.

- A report from Michigan Medical Service on its follow-through of 1960 MSMS House of Delegates requests and actions concerning Blue Shield was received as information.
- The Council authorized Chairman H. J. Meier, M.D., of Coldwater to present a statement on behalf of MSMS at the public hearings on the Blue Shield rate increase request.
- Chairman Meier reported that the fluoridation case of Margaret Jones vs. the City of Highland Park (Michigan) resulted in a dismissal of the case without trial.
- President Johnson appointed the new Medical Care Study Committee as per instructions in Resolution No. 1 of the 1960 House of Delegates, with H. F. Falls, M.D., of Ann Arbor as Chairman; the President also appointed the Blood Banks Committee with R. L. Mainwaring, M.D., of Dearborn as Chairman, and the Rural Medical Service Committee with H. B. Zimmer, M.D., of Lapeer as Chairman.
- A special Secretary's Letter to component societies was authorized to alert them re the Michigan Association of the Professions Congress in Detroit, February 22-23-24, and to the United States Chamber of Commerce Aircade scheduled for Detroit, March 1.
- At the suggestion of Speaker J. J. Lightbody, M.D., Detroit, The Council took action on two reports left unresolved by the 1960 House of Delegates: (a) it accepted the minutes of the one committee meeting held by the Permanent Advisory Committee on Fees in lieu of a formal annual report of that Committee, and (b) it approved the annual report of the Committee to study problems of malpractice. The Council urged the inclusion of malpractice prevention as a valuable subject on component society meeting programs at least once every second year with either an MSMS Councilor or the Chairman of the MSMS Study Committee to be on these programs.
- Speaker J. J. Lightbody of Detroit reported he had appointed the four committees of the House of Delegates.
- Congratulations and commendations were ordered sent to C. Howard Ross, M.D. of Ann Arbor for the excellent work he is doing in socioeconomic education of seniors at U-M Medical School.
- Legal Counsel Lester P. Dodd's report included opinions covering: (a) the principles applicable to the liability of "referring physicians" and "consultants"; (b) concerning statement of principles and resolution of intent with respect to governmental medical program; (c) opinion re admission of others than doctors of medicine to the staff of a hospital originally organized under the county sanatorium act; (d) report on the trial of "Gonserton," a Bay City corporation found to be in violation of the medical practice act and enjoined by the court from further operation and advertising.
- President-Elect Otto K. Engelke, M.D., Ann Arbor, praised the Wayne County Medical Society for sponsoring a highly successful legislative dinner on January 20, 1960.
- Matters of mutual interest were discussed with Assistant Dean Tupper of U-M, with Dean Scott of Wayne State Medical College, and with Michigan Health Commissioner Heustis.
- Directory of Members. The Council instructed that the Directory be published every second year (1962, 1964, 1966 et seq.).
- The Journal. Due to lessened advertising, The Council recommended that the Publication Committee give serious consideration to reduction of the total number of pages in each issue of The Journal in order to reduce production costs and operate within the estimated budget.
- Committee Meetings. The Council instructed that a memorandum be sent to all committee chairmen urging that all committee meetings when feasible be held in the new MSMS headquarters in East Lansing as soon as the new building is completed.

- County-State Society Nights: The Council was of the opinion that these nights are arranged for the purpose of discussing county society-state society problems, and that such formal programs might well be limited to MSMS and county society representatives; this suggestion is to be offered to all component societies.
- The Council recommended that component societies enter into discussions on the Mills-Kerr legislation and Medical Aid to the Aged (MAA) with representatives of their respective (county or district) welfare departments.
- Each Councilor rendered a report on the condition of the profession in his individual District.
- Magazine articles unfavorable to Medicine. Numerous articles containing one point of view and frequent inaccuracies, on a national scale, are appearing in magazines. The Council petitioned the American Medical Association to prepare statements on each article appearing in a national magazine unfavorable to Medicine, that this statement be released to all news outlets and state and county medical societies, and that AMA Officers and Delegates make personal calls upon the magazine editors or publishers in an effort to prevent repetition of irresponsible journalism.
- Committee reports. The following were considered: (a) Maternal Health Committee, meeting of January 12, with personal presentation by Chairman Francis Jones, M.D., of Lansing; (b) Progress report on Relative Value Study, a special report from Chairman Luther R. Leader, M.D., Detroit; (c) National Defense Committee, meeting of November 30, and resignation of Max L. Lichter, M.D., of Melvindale as Chairman, due to his increased participation in AMA Counsel on National Defense activities; (d) Prevention of Highway Accidents, November 10; (e) Committee to Study Establishment of Loan Fund for New Physicians, December 14; (f) Venereal Disease Committee, December 1; (g) Postgraduate Medical Education Committee, December 8; (h) 1961 Committee on Scientific Work Program, December 21; (i) Legal Affairs Committee, December 29; (j) Ad hoc Committee to Study Utilization of Health Insurance, January 4; (k) Mental Health, January 5; (l) Cancer Control Committee, January 12; (m) MCI Program Committee with Discussion Group Leaders, January 17; (n) Advisory Committee to Executive Director; January 27; (o) Committee to Streamline 1961 Midsummer Session of The Council, January 27; (p) Hospital Relations Committee, December 8; (q) Big Look Committee, January 28, also the Michigan Cancer Coordinating Committee minutes of meetings of December 15 and January 12.
- Reports. (a) On the second national Conference on the Medical Aspects of Sports, Washington, D. C., November 27, submitted by Robert E. Anderson, M.D., of Flint; (b) on AMA Conference on Civil Defense, Chicago, November 4-6, submitted by W. G. Gamble, M.D., Bay City.
- Appointments. (a) G. B. Saltonstall, M.D., Charlevoix, as MSMS representative to Board of Directors of Michigan Association of the Professions; (b) R. W. Teed, M.D., Ann Arbor, and K. W. Toothaker, M.D., Lansing, as Delegate and Alternate to Michigan Health Council for 1961; (c) The Council Chairman was authorized to appoint an MSMS representative to the golden anniversary of Joint Committee on Health Problems in Education, Chicago, March 8, and to the eighth national Conference on Physicians and Schools, Chicago, March 9-11; (d) C. P. Anderson, M.D., Detroit, was appointed Chairman and Grant L. Otis, M.D., of Jackson, Vice Chairman of the MSMS National Defense Committee.
- Public Relations Counsel H. W. Brenneman's monthly report included report on White House Conference on Aging held in Washington, D. C.; on state legislation; on exhibiting at 1961 Michigan State Fair (sponsorship was approved by The Council); on the Michigan Constitutional Convention; on News Luncheon for the Michigan Clinical Institute to be held in Detroit, March 1.

ANNUAL REPORT OF THE SECRETARY

Presented to The Council

January 27, 1961

MEMBERSHIP

The Michigan State Medical Society membership for 1960 showed a total of 6,714 members, including 41 Military members, 387 Associate Members, 312 Life members, 88 Retired members and 6 Honorary members. The total paid membership was 5,877, with net dues of $380,356.29. The 1960 membership once again established a new record for the Society. The number of members with unpaid dues for 1960 was 28.

DEATHS DURING 1960

I must regretfully report a total of 98 deaths among members during the past year.

Bay County—Fred H. Drummond, M.D., Kawkawlin; John A. Freel, M.D., Bay City; E. Charles Hughes, M.D., Bay City; Paul R. Urmston, M.D., Bay City.

Berrien County—Kenneth H. Cowdery, M.D., St. Joseph.

Branch County—Robert L. Wade, M.D., Coldwater.

Calhoun County—Herman Beuker, M.D., Marshall; Joseph E. Rosenfeld, M.D., Battle Creek.

Chippewa-Mackinac County—LeRoy J. Wallen, M.D., Sault Ste. Marie.

Dickinson-Iron County—Cyril D. Klaus, M.D., Iron Mountain.

Genesee County—Robert L. Phillips, M.D., Nokomis, Florida; Karl F. Searles, M.D., Flint.

Grand Traverse-Leelanau-Benzie County—Mark F. Osterlin, M.D., Traverse City; B. H. VanLeuven, M.D., Empire.

Gratiot-Isabella-Clare County—Charles F. DuBois, M.D., Alma; Herbert F. Kilborn, M.D., Alma.

Houghton-Baraga Keeweenaw County—J. R. W. Kirton, M.D., Calumet.

Huron County—John Ritsema, M.D., Sebewaing.

Ingham County—J. Earl McIntyre, M.D., Lansing; Clifford G. Menzies, M.D., East Lansing; Ray A. Pinkham, M.D., Lansing.

Ionia-Montcalm County—John W. C. Fleming, M.D., Pewamo.

Jackson County—Arthur M. Schaeffer, M.D., Jackson; Edward T. Torwick, M.D., Jackson.

Kalamazoo County—Charles O. Holder, M.D., Kalamazoo; Amos S. Youngs, M.D., Kalamazoo.

Kent County—Henry M. Blackburn, M.D., Grand Rapids; Harold J. Damstra, M.D., Grand Rapids; Lucile R. Grant, M.D., Grand Rapids; George P. Graybiel, M.D., Caledonia; J. Winslow Holcomb, M.D., Grand Rapids; Horace C. Jones, M.D., Grand Rapids; Karl E. Seidel, M.D., Grand Rapids.

Lapeer County—Clarence D. Chapin, M.D., Columbiaville; Adolph T. Rehn, M.D., Lapeer.

Macomb County—S. E. Lerman, M.D., Warren; Morris H. Marks, M.D., Centerline.

Marquette-Alger County—Charles L. Hirwas, M.D., Marquette.

Muskegon County—J. P. Yegge, M.D., Muskegon Heights.

Oakland County—Leon F. Cobb, M.D., Pontiac; Albert Jacknow, M.D., Pontiac; Charles A. Neafie, M.D., Pontiac; George N. Petroff, M.D., Pontiac; Ross J. Porritt, M.D., Pontiac; Edward Stein, M.D., Oak Park.

Ontonagon County—Jesse L. Bender, M.D., Greenland.

Saginaw County—William H. Brock, M.D., Saginaw; Donald H. Howell, M.D., Saginaw; W. H. Pickett, M.D., Gainesville; Joseph L. Radai, M.D., Saginaw; Walter K. Slack, M.D., Saginaw.

St. Clair County—Lewis M. Carey, M.D., New Smyrna Beach, Florida; Evert W. Meredith, M.D., Port Huron.

Van Buren County—M. W. Buckborough, M.D., South Haven.

Washtenaw County—Theodore P. Eberhard, M.D., Ann Arbor; Warren E. Forsythe, M.D., Eugene, Oregon; Edwin C. Ganzhorn, M.D., Ann Arbor; James H. Maxwell, M.D., Ann Arbor; Christopher G. Parnall, M.D., Ann Arbor; Charles L. Washburne, M.D., Ann Arbor; Walter J. Wright, M.D., Ypsilanti.

Wexford-Missaukee County—Calvin S. Purdy, M.D., Buckley.

Wayne County—Robert E. Anslow, M.D., Detroit; Donald A. Bailey, M.D., Detroit; Saul E. Barnett, M.D., Detroit; Sidney Berman, M.D., Detroit; Edgar A. Bicknell, M.D., Detroit; Osborne A. Brines, M.D., Detroit; Richard A. Bruehl, M.D., Port Charlotte, Florida; Oreste A. Capano, M.D., Detroit; Charles W. Castrop, M.D., Dearborn; V. George Chabut, M.D., Northville; Charles H. Clifford, M.D., Southfield; Julius C. Clippert, M.D., Detroit; Frederick H. Cole, M.D., Detroit; Robert K. Dixon, M.D., Detroit; D. R. Donovan, M.D., Detroit; Anthony J. Font, M.D., Detroit; William Gramley, M.D., Detroit; Arthur S. Hale, M.D., Detroit; James A. J. Hall, M.D., Detroit; Wm. F. Hamilton, M.D., Detroit; John A. Hookey, M.D., Wyandotte; Charles G. Johnston, M.D., Detroit; Joseph O. Kopel, M.D., Detroit; Henry R. Leibinger, M.D., Detroit; Gordon B. Myers, M.D., Detroit; Everett H. Reed, M.D., Detroit; Charles A. Reinbolt, M.D., Farmington; Emil D. Rothman, M.D., Huntington Woods; John Schlemer, M.D., Detroit; Ward F. Seeley, M.D., Detroit; Charles J. Socall, M.D., Detroit; Ellis H. Steffensen, M.D., Detroit; Robert B. Toaz, M.D., Detroit; Peter E. Tuynman, M.D., Detroit; J. C. Williamson, M.D., Dearborn; William P. Woodworth, M.D., Detroit.

ORGANIZATIONAL ACTIVITIES

1960 Annual Session.—The past year the 95th Annual Session was held in Detroit with a total attendance of 4,094. This includes 2,266 doctors of medicine. The General Assembly type of program was continued.

1960 Michigan Clinical Institute.—The fourteenth Michigan Clinical Institute was held in Detroit, March 8-11. The total registration was 2,671 including 1,260 doctors of medicine. Again the Operating Room Nurses Conference and the Residents, Interns and Senior Medical Students Seminar were held in conjunction with the MCI.

Annual County Secretaries-Public Relations Seminar.—The 1960 County Secretaries-Public Relations Seminar was held on January 30-31, 1960, in Detroit, and was attended by 249, an increase over the previous year.

Communication with Membership.—As a part of the Society's general educational and informational program for individual members and for component county societies during the year 1960, five Secretary's Letters were issued, three to all members and two to County Society Officers. These informational bulletins were in addition to the monthly issues of THE JOURNAL with its scientific articles and informative news items.

In addition, four Legislative Bulletins were issued to 750 key men during the 1960 legislative sessions to keep the membership informed of activities in the State Legislature pertaining to the practice of medicine.

A new publication "Medical Economic Currents" was published, containing capsulated and charted facts of major interest. Two issues were sent to 1,000 MSMS members who have state and county responsibilities which place them in the position of developing policy and expressing medicine's position to the public. This publication also provided opportunity for reprinting of these charts in county medical society bulletins. Generous compliments on this informational bulletin have come to MSMS from many members.

FINANCES

An audit of the Society's books covering twelve months was completed by Auditor K. B. Knostman as of November 30, 1960. This has been submitted to the Finance Committee for study and is available to any member of the Society for perusal at the Executive Office. A brief summary of the audit produces the following information:

Assets:	
Cash	$ 39,794.72
Accounts Receivable	21,160.62
Investments	92,124.97
Property and Equipment	643,229.23
Other assets	1,004.15
Total assets	$797,313.69
Liabilities:	
Notes Payable (incl. accrued interest)	$150,681.59
Accounts Payable	94,457.71
Society Equities:	
Public Education Reserve	$ 35,000.00
Public Education Program	29,154.95
Public Service Account	2,985.15
Professional Relations Account	—6,189.64
Rheumatic Fever Program	1,436.22
Bldg. Maintenance Fund—606	—1,342.63
New Headquarters Fund	—31,737.25
New Headquarters Under Constr.	454,185.07
General Society Equity	68,682.52
Total Liabilities and Equities	$797,313.69

It should be noted that the financing of the New MSMS Headquarters Building, now nearly completed, involved the securing of additional funds from a commercial bank at a favorable rate of interest and the temporary use of the MSMS Public Education Reserve which also stands as an obligation of the MSMS to be eventually re-established.

THE JOURNAL

The following financial information relative to THE JOURNAL is found in the annual audit report of K. B. Knostman. Income was $135,073.74 which is $13,976.26 under the estimated budget for 1960 (this includes $8,733.62 from allocations of members' dues). Expenses were $146,648.57 which was $1,908.57 over the budget estimate for the year and resulted in a loss for the year of $11,574.83 on JOURNAL activities. The Publication Committee became aware early in the year of the substantial decrease in advertising revenues and for the final six months of the year decreased the number of pages in each issue in order to reduce production costs.

PUBLIC RELATIONS

In 1960, the public relations expenditures of MSMS were curtailed in recognition of necessary use of funds for other purposes. The Public Relations Committee has attempted to compensate by channeling available monies into activities producing the greatest PR rewards.

Postponed were plans for a Medical-Legal Conference on Investigation of Unexplained Deaths, a motion picture and brochure on the cost of medical care, and all County Fair exhibits except the Michigan State Fair. Dropped also were live surgical public telecasts.

Despite the decreased PR budget, The Council in July authorized a crash program called the Campaign for Freedom. Financing of this project was obtained by appropriation of necessary funds from the Public Education Reserve.

The public relations program of MSMS, through its Public Relations Committee, for 1960, was as follows:

Campaign for Freedom.—This was a two-phase program designed to (1) inform the doctors and their patients of the urgent need to oppose legislative plans to include medical care in the social security program, and (2) to explain the Mills-Kerr legislation which would enlarge the scope of public assistance programs.

The Campaign for Freedom held three regional meetings in the State to explain the plans and inspire local action. Subsequent mailings were sent to all MSMS members urging personal activity and the establishment of local Campaign for Freedom committees. Forty of these committees were established and successfully activated.

Two pamphlets were produced and more than 400,000 were distributed by doctors, their wives, medical assistants and friends.

Television and Radio.—Additional "Family Doctor" television shows were presented supplemented by appearances over established programs or on specially allocated periods. Cooperation was given to the Michigan Association of the Professions-Michigan Health Council TV program "Decision—the Moment of Truth," a program built to explain why professional people do-what-they-do-in-the-way-that-they-do-it and how to make best use of professional people. Several radio programs were originated by MSMS and participation by MD's in these programs was outstanding. Continued support was given the U. of M. health series broadcast in tape over local radio stations.

Intra-Professional Liaison.—Visits to county medical societies, the Upper Peninsula Medical Society and sundry specialty groups maintained intra-professional liaison. All requests for services by county medical societies or individual members were gladly received and carried out.

Motion Pictures.—The documentary film on the new MSMS Headquarters is progressing nicely. Several films prepared by the AMA and other recognizably authoritative organizations were purchased.

Science Fairs.—MSMS aided local medical society participation in science fairs and recognized the winner of the National Science Fair, Philip C. Bockman, from Grand Rapids.

Exhibits.—An educational exhibit was made at the Michigan State Fair and we point now to the fact that last year MSMS was awarded the trophy for having the outstanding exhibit at that fair. This fact occurred too late to include in last year's report. Again thanks are due the county societies, the Auxiliary, medical students and medical assistants for their cooperation.

Michigan Association of the Professions.—This organization has grown to a membership of 3,470 and has effectuated a program of service in the fields of education, public relations, legislation and business services. Of particular advantage to the medical profession were:

(a) The Congress of the Professions—Detroit, January 22-23, which held hearings on the subjects noted above and presented, among other outstanding speakers, Dr. Arthur S. Flemming, Secretary of Health, Education and Welfare and Dr. David B. Allman, Past President of the AMA.

(b) Day-long meetings to recruit students such as that held at Traverse City where students from a ten-county area were interviewed by eight deans of graduate schools.

(c) Legislative support of the Keogh Bill and opposition to the Forand Bill by letter and personal trip of officers to Washington, D. C.

(d) The instituting of Group Term and Major Medical Insurance programs, plus other business services such as the "new office" furnishing and equipping program.

Pamphlets.—Distribution of AMA pamphlets was emphasized this year in view of the excellence of these publications. Schools, school libraries, fairs, doctors' offices, etc., served as outlets for these. In addition, the MSMS "Emergency Medical Card" and the pamphlet "Your Family Health Record" were distributed in the number of several thousand.

Public Relations Workshop.—The annual County Secretaries-Public Relations Seminar was held in January, augmented by an Editor's Workshop for publishers of county society bulletins.

Mass Media.—By means of press releases to all Michigan newspapers, radio and TV stations, reports of current work of MSMS were carried to the general public. Also special stories were released to home-town papers

of doctors who received special honors. The work of the staff with the newspapers is a never-ending task highlighted by special work under the direction of the Press Committees at the Annual Session and the MCI.

Speakers Program.—Throughout the year, the medical profession served the schools, colleges, clubs, ancillary groups and business organizations with a steady flow of speakers on an unusually broad variety of subjects—uppermost, this year, were talks on the problems of the aged.

Publications.—Many legislative and other special bulletins were issued during the past year. Aid was given "The Auxilium," meeting announcements, JMSMS articles and a pronounced change in the format of THE JOURNAL was accomplished. A new "Medical Career Guide" was prepared by MSMS for publication by the Michigan Employment Security Commission. The special subcommittee in charge of this project was headed by J. M. Sheldon, M.D.

PR Library.—This growing repository of working materials continues to increase in value and usage. Adequate accommodations for it will be available shortly and it is anticipated that next year will see a vastly increased service emanating from this valuable facility.

Civic Affairs.—Increased interest in civic affairs has been evidenced by county societies during the past year. Delegations of doctors to Lansing, Washington, D. C., participation in aging conferences, regional health conferences, political parties, local "Homeramas," etc., have indicated an increasing interest by the profession in civic duty.

National Rural Health Conference.—Held in Michigan for the first time, this AMA-sponsored conference attracted nationwide interest and was well attended. MSMS played an active part in obtaining this conference for Michigan and aided in the development and presentation of the program. This program, plus the Regional Conferences, replaced the annual Michigan Rural Health Conference in 1960. The Annual Rural Health Conference series will be resumed in 1961.

Presidents Program.—The Presidents Program, to be reviewed elsewhere, is heartily endorsed as offering vast possibilities for outstanding public relations gains.

Comment: The concerted efforts of powerful opposing forces are making inroads in public thinking. The Public Relations Committee feels duty-bound to urge increased PR activity in the future, both on the part of the individual doctor and of his medical organizations.

COMMITTEES

Again, time and space preclude the listing in detail of the many activities of all the committees contributing to the splendid programs of the State Society. The accomplishments of the committees of the Society were achieved at the expense of countless hours of personal sacrifice on the part of their MD personnel. During 1960 a total of 110 meetings were held by our 82 committees. Practically every meeting was covered by your Secretary or Executive Director or one of the staff members. More than 600 Society members gave freely of their time to attend these meetings and assist in the operational activities of the State Society. Much commendation must be accorded the committee members who contributed so generously to develop and execute constructive programs—both scientific and economic—for the public welfare.

SERVICES FOR MEMBERS

1. *Group Health and Accident Insurance.*—Our carrier, Provident Life and Accident Insurance Company, advises that enrollment now stands at approximately 2,075. Plans are under way for an intensive drive to increase enrollment.

The number of new claims reported during the year was 239. Approximately 550 individual payments were made (in many instances periodic payments are necessary to discharge the Company's liability).

Actual claim payments to Insured Members during the year 1960 totalled $169,795.00. This includes the 10 per cent dividend payment on each Loss of Time claim, which was first originated on a year-to-year basis in November, 1959 and continued for another year in November, 1960.

In addition to the payments actually made, the reserve as of December 31, 1960, representing future liability on presently reported claims, totalled $50,837.70. As of that time there were 51 open claims.

2. *Group Life Insurance.*—Our group life insurance carrier, Mutual Benefit Life Insurance Company of New Jersey, reports that 1,396 MSMS members are now insured. The program was first offered March 1, 1959. Amount of life insurance in force is $11,900,000 and 22 death claims have been paid to date.

LEGAL AFFAIRS

The Regular Session of the 70th Michigan Legislature, one of the shortest in history, passed only 167 measures, fifty less than in any previous regular session.

The MSMS Legal Affairs Committee, however, found it necessary to carefully look into 122 proposals. Two important Senate Bills and two important House Bills, sponsored (or supported) by MSMS, were enacted into law. No legislation inimicable to the practice of medicine was passed.

Dominating the legislative scene, both in Washington and on Lansing Capitol Hill, was the subject of problems of the aging, particularly medical care. The State Legislature established both a Commission on Aging and a Legislative Advisory Council on Problems of the Aging. In Washington, the Forand Bill was sidetracked by the Kerr-Mills Bill to provide grants to states for medical care for aged individuals of low income. Kerr-Mills passed the Congress on September 13, and Michigan's Legislature went back into special session to become the first state to implement the new program.

While Michigan's Medical Aid to the Aged (MAA) program, enacted into law only three months ago, may become a model for other states wishing to implement the Federal legislation, proponents of the all-out Social Security approach have already introduced measures in the 1961 Congress to force through this new approach to socialized medicine.

The MSMS is deeply grateful to its members who participated in the Campaign For Freedom, for their unstinting aid in counselling their state and national legislators this past year.

NEW HEADQUARTERS

The new headquarters is rapidly nearing completion. Furnishings and equipment will be installed by mid-March; the staff has scheduled its move from 606 Townsend to the new address for early April. Formal dedication of the new building will be held on Sunday, June 4.

1960 HOUSE OF DELEGATES

In past years, the Secretary's Annual Report has contained a summary of actions of the House of Delegates. This year, your secretary omits this report because the Speaker's Summary already has appeared in THE JOURNAL of MSMS (November, 1960) and the entire proceedings will be published in Section No. 2 of the January number of THE JOURNAL.†

ACKNOWLEDGEMENT

Your Secretary is very grateful for the helpful cooperation given him by The Council.

Members of the Executive Office staff have been most helpful and cannot be too highly commended for their

†Published in the special House of Delegates Proceedings number of THE JOURNAL in January, 1961.

untiring efforts and loyalty to the Michigan State Medical Society.

To everyone who has aided so generously and willingly in the discharge of his duties, your Secretary is most grateful.

Respectfully submitted,
D. BRUCE WILEY, M.D.
Secretary

TREASURER'S REPORT

December 1, 1959 to November 30, 1960

Pursuant to my appointment as Treasurer, by The Council, January, 1960, I am submitting the report of my office.

Balance on hand December 1, 1959	$15,003.56
Deposits 12-1-59 to 11-30-60	3,674.26
Total	$18,677.82
Withdrawal December 26, 1959 Sent to Mr. Roney for general account	$ 5,000.00
Withdrawal August 10, 1960 Sent to Mr. Roney for general account	13,000.00
Total Withdrawals	$18,000.00
Balance on hand November 30, 1960	$ 677.82

I am submitting a list of deposits and withdrawals during the past twelve months, also a list of securities at present in our portfolio in Lock Box 121 in Michigan National Bank, in Grand Rapids. The value of these securities amounted to $92,000.00 on November 30, 1960.

Respectfully submitted,
WILLIAM A. HYLAND, M.D.
Treasurer

List of Deposits and Withdrawals of Michigan State Medical Society in Treasurer's Account December 1, 1959 to November 30, 1960:

Balance December 1, 1959	$15,003.56
Deposit December 16, 1959	$ 696.93
January 21, 1960	281.25
January 27, 1960	55.20
April 6, 1960	235.00
May 17, 1960	312.50
May 17, 1960	437.50
May 24, 1960	75.00
June 8, 1960	696.93
June 20, 1960	281.25
July 30, 1960	55.20
September 30, 1960	110.00
November 16, 1960	437.50
Total Deposits	$ 3,674.26
	$18,677.82
Withdrawal December 26, 1959	$ 5,000.00
Withdrawal August 10, 1960	13,000.00
Total Withdrawals	$18,000.00
Balance November 30, 1960	$ 677.82

This statement has been certified by Mr. Frances P. Slattery, Vice President of Michigan National Bank, and the accounting firm of Mr. Kenneth B. Knostman of Lansing, Michigan.

List of securities belonging to Michigan State Medical Society in the safety deposit box of Dr. William A. Hyland, Treasurer of the Michigan State Medical Society:

4—$1,000 U. S. Savings Bonds No. M262323/4/5/6K dated July, 1954
$8,000 U. S. Treasury 2¾% bonds due 1975-80
Michigan National Bank, Lansing, safekeeping receipt for 4—$10,000 U. S. Savings Bonds No. X54843/846K dated June 18, 1954
$5,000 U. S. Savings Bond No. V49459K
Michigan National Bank, Grand Rapids, safekeeping receipt No. 4536 for $35,000 U. S. Treasury 2½% due November 15, 1961. (This above U. S. Treasury Bond was sold on December 8, 1960 and the proceeds around $35,000 were sent to Mr. Roney for the general fund account of new building. This is not part of the current report, but will be reported again next year—only noted at this time.)

We have turned into the general fund during the period of December 1, 1959 to November 30, 1960 a total of approximately $75,000.00 in U. S. bonds and Certificates of Deposit.

This statement has been certified by Mr. Frances P. Slattery, Vice President of Michigan National Bank, and the accounting firm of Mr. Kenneth B. Knostman of Lansing, Michigan.

REPORT OF KENNETH B. KNOSTMAN

Certified Public Accountant—1960

January 6, 1961

The Council
Michigan State Medical Society
Lansing, Michigan
Gentlemen:

The following comments relate to the scope of our examination of the MICHIGAN STATE MEDICAL SOCIETY, Lansing, Michigan, as at November 30, 1960 and to the more important items appearing in your financial statements for the fiscal year then ended.

HISTORY

The Michigan State Medical Society was organized on September 17, 1910 under the laws of the State of Michigan, as a non-profit corporation. The charter has been extended for a period of thirty years from September 17, 1940. The Society is affiliated with the American Medical Association, and it charters county medical societies within the State of Michigan. The purposes of the Society are the promotion of the science and art of medicine, the protection of the public health, and the betterment of the medical profession. In the furtherance of these purposes, the Society publishes THE JOURNAL OF THE MICHIGAN STATE MEDICAL SOCIETY.

COMMENTS

Your commercial bank account, maintained at the Michigan National Bank, Lansing, Michigan, was reconciled to your books of account, and further confirmed by direct correspondence with the bank as at November 30, 1960. Your savings account was closed on September 1, 1960.

Confirmation of the treasurer's account, as at November 30, 1960 was received from the Michigan National Bank, Grand Rapids, Michigan and reconciled to your books of account.

Petty cash in the Lansing office, in the amount of $82.30 was counted by our representative. The Detroit office petty cash of $50.00 was not verified.

Accounts receivable were confirmed by direct correspondence. Although not all confirmations have been returned, all reported differences have been reconciled to your accounts. An aging analysis of the accounts by month of charge is as follows:

September, October, November	$13,460.71
June, July, August	113.30
Over six months	185.52
TOTAL	$13,759.53

Included in the above total are individual accounts with credit balances totalling $3,687.41 which are the results of overpayments of accounts and prepayments for 1961 booth spaces.

The employees' share of insurance premiums, in an amount of $2,823.05, are reimbursed to the Society via payroll deductions. This balance is comprised of the following:

Retirement plan premiums	$2,771.36
Michigan Medical Service premiums	51.69
TOTAL	$2,823.05

The net cost of your retirement plan for the current year is as follows:

	Total	*Society Share*	*Employe Share*
Premium—1 year	$22,922.35	$11,461.18	$11,461.17
Adjustments	3,887.73	1,073.21	2,814.52
	$26,810.08	$12,534.39	$14,275.69
Less: Cancellations	2,054.63	1,027.32	1,027.31
NET	$24,755.45	$11,507.07	$13,248.38
Collections from employes	10,477.02		10,477.02
	$14,278.43		$ 2,771.36
Due from employes	$ 2,771.36		$ 2,771.36
NET SOCIETY COST	$11,507.07	$11,507.07	$ —0—

Employee travel advances were substantiated by non-interest bearing signed statements from the five employees to whom advances have been made.

The employee loan was being repaid through monthly payroll deduction. We were advised by your office that this loan was fully paid in December, 1960, upon termination of employment by the employee.

An analysis of your investments, showing changes during the current year, is set forth in Schedule 10, as well as a detail of interest received and amortization taken. All securities were confirmed by direct correspondence with the Michigan National Bank, Grand Rapids, Michigan, per their letter dated December 8, 1960.

Real estate owned, deposits, and payments on your new headquarters building currently under construction are set forth in Schedule 11, together with applicable depreciation allowances.

Prepaid expenses represent supplies purchased in 1960 that are applicable to 1961 activities.

Office equipment purchased during the period under review was charged to expense in accordance with the Society policy of not reflecting equipment as an asset.

Notes payable plus accrued interest represents three separate notes of $50,000.00, bearing interest at the rate of 5% per annum. Interest has been accrued thereon through November 30, 1960. The amounts of the individual notes was verified by direct correspondence with the payee.

State and federal unemployment taxes were computed by our representative as at November 30, 1960.

Unpaid invoices—general, were for current obligations incurred in the normal course of business.

Unpaid invoices—construction, were for billings of construction costs incurred by the contractor during the month of November, 1960.

Unpaid invoices—retainage, on new headquarters construction contract represents the amounts withheld from payment to the contractor and will become payable upon the satisfactory completion of the project.

Membership dues for year under review were reconciled to the 6,916 membership cards issued.

Income from the sale of booth space for the Michigan Clinical Institute and the Annual Session was verified by our representative and a test check of JOURNAL Advertising was in agreement with your books of account.

Net gain for all society functions for the year ended November 30, 1960 was $55,573.25 as set forth in Exhibit "C."

Respectfully submitted,
KENNETH B. KNOSTMAN
Certified Public Accountant

STATEMENT OF FINANCIAL CONDITION

November 30, 1960

ASSETS			
CASH ON HAND AND IN BANKS			
Michigan National Bank			
Lansing, Michigan (regular account)		$ 38,984.60	
Grand Rapids, Michigan (treasurer's account)		677.82	
Office cash (Lansing and Detroit, Michigan)		132.30	$ 39,794.72
ACCOUNTS RECEIVABLE			
Advertising, allowances and other items		13,759.53	
Due from employes—insurance premiums		2,823.05	
Employe travel advances		500.00	
Employe loan (interest rate at 4%)		4,078.04	$ 21,160.62
INVESTMENTS (Schedule 10) (Market or redemption value $90,381.00)			$ 92,124.97
PROPERTY AND EQUIPMENT			
Land—606 Townsend		$ 10,000.00	
Lot adjoining office		6,000.00	
Land—M-78 and Abbott Road		65,646.00	
Deposit on adjoining lot		500.00	
New headquarters building (under construction)		530,798.50	
Office building	$ 34,500.00		
Building improvements	5,664.06		
Building equipment	3,836.09		
Parking lot	1,913.60	$ 45,913.75	
		$658,858.25	
Less depreciation allowance		15,629.02	$643,229.23
OTHER ASSETS			
Prepaid expenses			$ 1,004.15
TOTAL ASSETS			$797,313.69

LIABILITIES

NOTES PAYABLE—BANK—plus accrued interest			$150,681.59
ACCOUNTS PAYABLE			
Federal unemployment tax		$ 218.08	
Michigan unemployment tax		42.15	
Withholding and social security tax		460.30	
Unpaid invoices:			
General		17,123.75	
Construction	$ 29,511.68		
Retainage on new headquarters construction contract	47,101.75	76,613.43	94,457.71
TOTAL LIABILITIES			$245,139.30
SOCIETY EQUITIES			
RESERVED FOR SPECIAL PURPOSES			
Public education reserve	$ 35,000.00		
Public education program	29,154.95	$ 64,154.95	
Public service account		2,985.15	
Professional relations account		(6,189.64)	
Rheumatic fever control program		1,436.22	
Building maintenance fund		(1,342.63)	
New headquarters fund		(31,737.25)	
New headquarters—under construction		454,185.07	
TOTAL RESERVED		$483,491.87	
GENERAL SOCIETY EQUITY—11-30-59	$178,506.71		
Less: Net loss for period (Exhibit B)	$(47,185.07)		
Fund transfers (Exhibit C)	(62,639.12) (109,824.19)	68,682.52	
TOTAL EQUITIES (Exhibit C)			$552,174.39
TOTAL LIABILITIES AND EQUITIES			$797,313.69

STATEMENT OF INCOME AND EXPENSES

Fiscal Year Ended November 30, 1960

INCOME		
Membership dues	$158,371.50	
Miscellaneous	95.31	
Interest income (Schedule 10)	4,719.39	
Amortization (Schedule 10)	257.96	$163,444.16
OTHER INCOME OR (LOSS)		
Annual session (Schedule 2)	(2,469.65)	
Michigan clinical institute (Schedule 3)	(210.98)	
"The Journal" (Schedule 4)	(11,574.83)	(14,255.46)
TOTAL INCOME		$149,188.70
EXPENSES		
Administrative and general	$ 97,592.99	
Society activity	46,368.96	
Committee expenses	52,411.82	
TOTAL EXPENSES (Schedule 1)		$196,373.77
NET LOSS		$(47,185.07)

EXPENSES

Fiscal Year Ended November 30, 1960

	Actual
ADMINISTRATIVE AND GENERAL	
Printing, mailing and postage	$ 8,704.23
Office supplies	4,316.78
Insurance and fidelity bonds	3,019.09
Auditing	905.00
Salaries—administrative and office (including legal counsel)	49,469.93
General counsel expense	4,167.32
Equipment and repairs	1,520.06
Telephone and telegraph	4,665.81
Taxes (other than property)	4,040.46
Miscellaneous expenses and contributions	3,757.16
Employes retirement trust	11,507.07
International Business Machines	1,520.08
TOTAL ADMINISTRATIVE AND GENERAL EXPENSES	$ 97,592.99
SOCIETY ACTIVITIES	
Council expense	$ 18,893.52
A.M.A. delegates and alternates	10,611.55
General society travel and entertainment	7,302.20
Officers' travel	3,731.15
Secretary's letters and office expense	1,458.17
Woman's auxiliary	600.00
Dues collection expense	3,772.37
TOTAL SOCIETY ACTIVITIES EXPENSE	$ 46,368.96
COMMITTEE EXPENSES	
Cancer Coordinating Committee	$ 1,032.29
Child Welfare Committee	161.94
National Defense	1,641.04
Geriatrics	1,140.17
Legislative	3,913.50
Maternal health	656.07
Mental health	651.09
Michigan Health Council	10,000.00
Post-graduate Medical Education	4,660.70
Preventive medicine	21.20
Permanent Conference Committee	71.17
Rural medical service	84.98
Scientific radio	1,260.45
Tuberculosis control	186.43
Venereal disease	81.01
Highway Accident Committee	136.68
Advisory Committee to Medical Assistants	755.34
Big Look Committee	438.71
Medical Care Insurance Committee	550.50
Michigan Joint Council on Aging Committee	28.77
Beaumont Memorial Restoration	5,206.22
Miscellaneous committee expense	1,102.34
Committee to Review Financial Status of Michigan State Medical Society	132.10
Malpractice Problems Study Committee	128.56
Blue Shield Committee	2,688.48
Relative Value Scale Committee	15,122.96
Committee on Committees	213.26
Constitution and By-laws Committee	67.73
Committee to Study Election and Status of Councilors	109.20
Permanent Advisory Committee on Fees	168.93
Committee to Study Michigan State Medical Society Publications	—0—
TOTAL COMMITTEE EXPENSES	$ 52,411.82
TOTAL EXPENSES	$196,373.77

INCOME AND EXPENSE OF THE ANNUAL SESSION

Fiscal Year Ended November 30, 1960

	Actual
INCOME	
Booth sales (95 spaces)	$25,945.00
TOTAL INCOME	25,945.00
EXPENSES	
Scientific meeting	3,366.13
Exhibit	4,341.88
Registration and hotel	1,156.18
State society and officers night	2,645.15
Promotion—printing, mailing, postage and scientific work committee	3,160.85
Press expense	2,259.58
Salaries	5,805.67
House of Delegates	4,576.14
Miscellaneous expenses	1,103.09
TOTAL EXPENSES	$28,414.65
GAIN OR (LOSS) ON ANNUAL SESSION	$(2,469.65)

INCOME AND EXPENSE OF THE MICHIGAN CLINICAL INSTITUTE

Fiscal Year Ended November 30, 1960

	Actual
INCOME	
Booth sales (72 spaces)	$14,040.00
TOTAL INCOME	14,040.00
EXPENSES	
Scientific meeting	2,578.57
Exhibit	4,813.39
Registration and hotel	1,362.24
Promotion—printing, mailing and postage	2,460.39
Press	1,173.02
Salaries	1,544.31
Residents and interns conference	253.07
Miscellaneous expense	65.99
TOTAL EXPENSE	$14,250.98
GAIN OR (LOSS) ON M.C.I.	$ (210.98)

INCOME AND EXPENSE SUMMARY

Fiscal Year Ended November 30, 1960

	Balance 12-1-59	*Fund Transfers*	*Income For The Period*	*Expenses For The Period*	*Net Gain or (Loss)*	*Balance 11-30-60*
Equity—general fund		$(62,639.12)	$163,444.16	$196,373.77	$(32,929.61)	
Annual session			25,945.00	28,414.65	(2,469.65)	
Michigan Clinical Institute	$178,506.71		14,040.00	14,250.98	(210.98)	$ 68,682.52
"The Journal"			135,073.74	146,648.57	(11,574.83)	
Contingent Fund	—0—	(8,733.61)	8,733.61	—0—	8,733.61	—0—
Building Maintenance Fund	4,936.60	—0—	—0—	6,279.23	(6,279.23)	(1,342.63)
Public Education Reserve	23,527.22	11,472.78	—0—	—0—	—0—	35,000.00
Public Education Program	19,651.34	15,000.00	54,265.41	59,761.80	(5,496.39)	29,154.95
Public Service	(8,683.54)	—0—	26,314.84	14,646.15	11,668.69	2,985.15
Professional Relations	(9,134.49)	—0—	36,529.37	33,584.52	2,944.85	(6,189.64)
Rheumatic Fever Control Program	3,275.12	—0—	2,180.67	4,019.57	(1,838.90)	1,436.22
Headquarters Fund	125,188.04	44,899.95	93,025.69	294,850.93*	93,025.69	(31,737.25)
New Headquarters—Under Construction	159,334.14	294,850.93	—0—	—0—	—0—	454,185.07
TOTAL	$496,601.14	$294,850.93	$559,552.49	$798,830.17	$ 55,573.25	$552,174.39

*NOTE: This item represents capital expenditures in your new headquarters building currently under construction. The balance in the "Headquarters Fund" represents amounts expended in excess of funds provided. The balance in "New Headquarters-Under Construction" represents your cash investment in your new building as at November 30, 1960.

INCOME AND EXPENSE OF "THE JOURNAL OF THE MICHIGAN STATE MEDICAL SOCIETY"

Fiscal Year Ended November 30, 1960

	Actual
INCOME	
Allocations from dues	$ 8,733.62
Subscriptions—non members	922.75
Advertising sales	120,811.86
Reprint and cut sales	4,605.51
TOTAL INCOME	$135,073.74
EXPENSES	
Editors expense	$ 3,102.33
Printing, mailing and postage	89,691.04
Reprint and cut expense	3,314.52
Salaries	23,623.46
Discounts and commissions	26,791.72
Miscellaneous expense	125.50
TOTAL EXPENSES	$146,648.57
GAIN OR (LOSS) ON "THE JOURNAL"	$(11,574.83)

INCOME AND EXPENSE OF THE BUILDING MAINTENANCE FUND

Fiscal Year Ended November 30, 1960

	Actual
INCOME	
Allocation from dues	—0—
EXPENSES	
Maintenance—utilities, decorating, supplies, yard work, etc.	$ 1,945.75
Salaries—janitor	1,202.76
Property taxes	1,029.03
Insurance—fire and liability	1,785.85
Depreciation	1,785.85
TOTAL EXPENSES	$ 6,279.23
GAIN OR (LOSS) ON BUILDING MAINTENANCE FUND	$ (6,279.23)

INCOME AND EXPENSE OF THE PUBLIC EDUCATION PROGRAM

Fiscal Year Ended November 30, 1960

	Actual
INCOME	
Allocation from dues	$ 54,072.66
Other income	192.75
TOTAL INCOME	$ 54,265.41
EXPENSES	
Committee meetings	$ 129.35
Equipment and repairs	1,022.78
Printing, mailing and postage	3,738.21
Office supplies	1,939.22
Salaries	25,742.67
Telephone and telegraph	1,199.52
Travel and entertainment	4,222.09
Exhibit expense	2,202.04
Publications, pamphlets, clippings	643.76
Radio, television and cinema	1,007.82
Miscellaneous expense	346.88
Library	370.70
Michigan Association of Professions	2,502.10
Campaign for Freedom	14,694.66
TOTAL EXPENSES	$ 59,761.80
GAIN OR (LOSS) DURING PERIOD	$ (5,496.39)

INCOME AND EXPENSE OF THE PUBLIC SERVICE ACCOUNT

Fiscal Year Ended November 30, 1960

	Actual
INCOME	
Allocation from dues	$ 26,314.84
TOTAL INCOME	$ 26,314.84
EXPENSES	
Salaries	$ 12,472.57
Telephone and telegraph	580.16
Travel and entertainment	1,593.42
TOTAL EXPENSES	$ 14,646.15
GAIN OR (LOSS) DURING PERIOD	$ 11,668.69

INCOME AND EXPENSE OF THE PROFESSIONAL RELATIONS ACCOUNT

Fiscal Year Ended November 30, 1960

	Actual
INCOME	
Allocation from dues	$ 36,529.37
TOTAL INCOME	$ 36,529.37
EXPENSES	
Rent to Wayne County Medical Society	$ 2,494.55
Salaries	17,387.29
Telephone and telegraph	810.72
Travel and entertainment	2,215.75
National meeting expense	2,287.08
County secretary's—Public Relations Conference	6,719.63
Woman's auxiliary	1,537.80
Miscellaneous expenses	15.00
Committee meetings	116.70
TOTAL EXPENSES	$ 33,584.52
GAIN OR (LOSS) DURING PERIOD	$ 2,944.85

INCOME AND EXPENSE OF THE RHEUMATIC FEVER CONTROL PROGRAM

Fiscal Year Ended November 30, 1960

	Actual
INCOME	
Grant from Michigan Heart Association	$ 2,180.67
TOTAL INCOME	$ 2,180.67
EXPENSES	
Committee meetings	$ 257.87
Printing, mailing and postage	52.00
TOTAL CENTRAL OFFICE EXPENSES	$ 309.87
CONTROL CENTERS	
Alpena	$ —0—
Ann Arbor	612.50
Bay City	60.00
Detroit	145.00
Grand Rapids	1,662.20
Kalamazoo	1,230.00
Saginaw	—0—
Traverse City	—0—
TOTAL CONTROL CENTERS	$ 3,709.70
TOTAL EXPENSE	$ 4,019.57
GAIN OR (LOSS) DURING PERIOD	$ (1,838.90)

SECURITIES OWNED

November 30, 1960

	Maturity Date	Face Value 11-30-60	Cost (Book Value) 12-1-59	Redemption or Market Value 11-30-60	Purchases During Period	Sales or Repemptions During Period	Amortization Debit or (Credit)	Cost (Book Value) 11-30-60	Interest Received to Last Interest Date
UNITED STATES GOVERNMENT SECURITIES									
Savings Bonds—series "G"	3- 1-60		$ 5,000.00		$	$ 5,000.00	$	$ —0—	$ 62.50
Treasury Bond—series "B" 2¾%	4- 1-80/75	$ 8,000.00	8,133.89	$ 8,000.00			(8.92)	8,124.97	220.00
Savings Bonds—series "K" 2.76%	6- 1-66	45,000.00	45,000.00	43,605.00				45,000.00	1,242.00
Savings Bonds—series "K" 2.76%	7- 1-66	4,000.00	4,000.00	3,876.00				4,000.00	110.40
Treasury Bond 2¼%	6-15-62/59		25,000.00			25,000.00			562.50
Treasury Bond 2½%	3-15-70/65		9,867.18			9,867.18			253.45
Treasury Bond 2½%	11-15-61		24,832.80			24,832.80			604.03
Treasury Bond 2½%	11-15-61	35,000.00	34,733.12	34,900.00			266.88	35,000.00	875.00
Savings deposit receipt—Michigan National Bank—10-24-57	Demand		5,000.00			5,000.00			165.87
Savings deposit receipt—Michigan National Bank—5-28-58	Demand		5,062.50			5,062.50			151.86
TOTAL SECURITIES		$ 92,000.00	$166,629.49	$ 90,381.00	$ —0—	$74,762.48	$257.96	$92,124.97	$4,247.61
Interest on savings account									299.37
Interest on loan									172.41
TOTAL INTEREST EARNED									$4,719.39

PROPERTY AND DEPRECIATION ALLOWANCES

November 30, 1960

	Date Acquired	Cost	Depreciation Allowance Prior Years	Remaining Cost	Estimated Life	1960 Depreciation Expense	11-30-60 Depreciation Allowance
Land—606 Townsend	1951	$ 10,000.00	$ —0—	$ 10,000.00		$ —0—	$ —0—
Adjoining lot	1952	6,000.00	—0—	6,000.00		—0—	—0—
Building—606 Townsend	1951	34,500.00	9,554.00	24,946.00	30	1,150.00	10,704.00
		50,500.00	9,554.00	40,946.00		1,150.00	10,704.00
BUILDING IMPROVEMENTS—606 Townsend							
New building entrance	1953	3,917.85	837.90	3,079.95	30	130.55	968.45
Remodel basement and storeroom	1956	1,746.21	198.87	1,547.34	30	58.21	257.08
		5,664.06	1,036.77	4,627.29		188.76	1,225.53
BUILDING EQUIPMENT—606 Townsend							
Lighting	1952	2,121.50	1,119.71	1,001.79	15	141.43	1,261.14
Boiler	1952	1,714.59	904.76	809.83	15	114.30	1,019.06
		3,836.09	2,024.47	1,811.62		255.73	2,280.20
PARKING LOT—606 Townsend	1953	1,913.60	1,227.93	685.67	10	191.36	1,419.29
OTHER REAL ESTATE AND DEPOSITS							
Land—M-78 and Abbott Road	8-19-58	65,646.00	—0—	65,646.00		—0—	—0—
Deposit on adjoining lot	7-24-58	500.00	—0—	500.00		—0—	—0—
New headquarters building (under construction)	1959-1960	530,798.50	—0—	530,798.50		—0—	—0—
Paid items $454,185.07							
Unpaid items 76,613.43							
		596,944.50	—0—	596,944.50		—0—	—0—
		$530,798.50					
TOTALS		$658,858.25	$ 13,843.17	$645,015.08		$ 1,785.85	$ 15,629.02

MSMS 1961 BUDGET

RECAPITULATION

INCOME:

Membership Dues: $75.00	$431,250.00	
Less: THE JOURNAL @ $3.00	17,250.00	
Public Education @ $9.25	53,187.50	
Public Service @ $4.50	25,875.00	
Professional Relations @ $6.25	35,937.50	
Hdqts. Fund @ $15.00	86,250.00	
Beaumont Foundation $1.00	5,750.00	
Balance to General Fund @ $36.00		$207,000.00
Interest and Miscellaneous Income		1,500.00
TOTAL GENERAL FUNDS AVAILABLE		$208,500.00

EXPENSES:

Administrative and General	$113,222.00	
Society Activities	41,800.00	
Committee Expenses	36,400.00	191,422.00
Estimated Gain in 1961 (General Fund)		$ 17,078.00

Account	Estimated Income	Estimated Expense	Estimated Balance
General Fund	$208,500.00	$191,422.00	$ 17,078.00
Annual Session	32,000.00	32,000.00	—0—
Michigan Clinical Institute	13,395.00	13,395.00	—0—
THE JOURNAL	132,850.00	127,100.00	5,750.00
Public Education	54,337.50	55,250.00	—912.50
Public Service	25,875.00	24,200.00	1,675.00
Professional Relations	35,937.50	35,310.00	627.50
TOTAL (Exclusive of Hdqts.)	$502,895.00	$478,677.00	$ 24,218.00
New Headquarters	225,891.07	255,891.07	—0—
Building Maintenance (Incl. "606")	53,441.82	47,750.00	5,691.82
	$279,332.89	$273,641.07	$ 5,691.82
GRAND TOTAL:	$782,227.89	$752,318.07	$ 29,909.82

1961 BUDGET

GENERAL FUND

ACCOUNT TITLE	1961
INCOME:	
5750 Members @ $75.00	$431,250.00
Less: $3.00 to THE JOURNAL	17,250.00
9.25 to Public Education	53,187.50
4.50 to Public Service	25,875.00
6.25 to Professional Relations	35,937.50
15.00 to New Headquarters	86,250.00
1.00 to Beaumont Foundation	5,750.00
Balance to General Fund @ $36.00	207,000.00
Interest and Miscellaneous Income	1,500.00
TOTAL FUNDS AVAILABLE	$208,500.00
EXPENSES: (Administrative and General)	
Printing, Mailing and Postage	$ 10,372.00
Office Supplies	5,000.00
Insurance and Fidelity Bonds	4,000.00
Auditing	900.00
Salaries—Administrative and Office (Includes Legal Counsel)	55,750.00
General Counsel Expense (Includes $3,600 office expense)	4,100.00
Equipment and Repairs	6,000.00
Telephone and Telegraph	6,500.00
Taxes (Other than property)	4,000.00
Miscellaneous Expense and Contributions	4,000.00
Employe's Retirement Trust	11,000.00
I.B.M.	1,600.00
TOTAL ADMINISTRATIVE & GENERAL EXPENSE	$113,222.00
EXPENSES: (Society Activities)	
Council Expense	$ 18,000.00
AMA Delegates and Alternates	8,500.00
General Society Travel and Expense	6,000.00
Officers Travel	3,500.00
Secretary's Letters and Office Expense	1,500.00
Woman's Auxiliary	600.00
Dues Collection Expense	3,700.00
TOTAL SOCIETY ACTIVITY EXPENSE	$ 41,800.00
EXPENSES: (Committees)	
Cancer Coordinating Committee	$ 1,000.00
Child Welfare	150.00
Disaster Medical Care	750.00
Geriatrics	1,200.00
Industrial Health	100.00
Iodized Salt	100.00
Legal Affairs	4,000.00
Maternal Health	500.00
Mental Health	500.00
Michigan Health Council	10,000.00
Postgraduate Medical Education	4,500.00
Preventive Medicine	100.00
Permanent Conference Committee	100.00
Rural Medical Service	100.00
Scientific Radio	1,400.00
Tuberculosis Control	200.00
Venereal Disease	100.00
Highway Accident Committee	150.00
Advisory Committee to Medical Assistants	400.00
Big Look Committee	300.00
Medical Care Insurance Committee	7,500.00
Relative Value Study Committee	1,500.00
Michigan Joint Council on Aging	100.00
Miscellaneous Committees	1,200.00
House of Delegates Committees:	
Special Committee to Review Constitution and Bylaws	100.00
Committee to Study Problem of Malpractice	100.00
Permanent Advisory Committee on Fees	150.00
Committee to Study Indigent Doctors	100.00
TOTAL COMMITTEE EXPENSE	$ 36,400.00

BUILDING MAINTENANCE FUND AND DEBT RETIREMENT (INCL. "606")

INCOME:	
From New MSMS Headquarters Fund	$ 53,441.82
EXPENSES:	
Maintenance (Utilities, Supplies)	10,000.00
Salaries—Custodial	4,500.00
Property Taxes	14,000.00
Insurance—Fire and Liability	3,500.00
Depreciation	12,000.00
Building Equipment	2,000.00
Grounds Keeping	1,750.00
TOTAL BUILDING MAINTENANCE	$ 47,750.00
GAIN OR LOSS FOR THE YEAR (G)	5,691.82
BALANCE FROM PRIOR YEARS (L)	1,342.63
BALANCE TO FUTURE YEARS (G)	4,349.19

NEW HEADQUARTERS FUND

INCOME:	
Allocation from Membership Dues	$ 86,250.00
Contributions	—0—
Fund Transfers and Sale of Bonds	—0—
From Borrowing	50,000.00
Balance from Prior Years	89,641.07
TOTAL FUNDS AVAILABLE	$225,891.07
EXPENSES:	
Expenditures (To Headquarters Equity)	$172,449.25
BALANCE TO BUILDING MAINTENANCE FUND	53,441.82
Estimated Cost of New Headquarters (From 1960 House of Delegates Report)	$722,292.00
Less: Land already purchased	—66,146.00
Less: Equity Acquired 1959-1960	—483,696.75
Estimated Balance to be Completed 1961	$172,449.25

ANNUAL SESSION

INCOME:	
Booth Sales 125 Spaces (Gr. Rapids)	$ 32,000.00
EXPENSES:	
Scientific Meeting	7,300.00
Exhibit	5,100.00
Registration and Hotel	1,300.00
State Society and Officers' Night	2,500.00
Promotion: Printing, Mailing and Postage and Scientific Work Committee	3,000.00
Press Expense	2,000.00
Salaries	5,600.00
House of Delegates Expense (Includes Special Guests)	4,500.00
Miscellaneous Expenses	700.00
TOTAL ANNUAL SESSION EXPENSE	$ 32,000.00

MICHIGAN CLINICAL INSTITUTE

INCOME:	
Booth Sales 70 spaces	$ 13,395.00
EXPENSES:	
Scientific Meeting	3,250.00
Exhibit	4,800.00
Registration and Hotel	650.00
Promotion—Printing, Mailing and Postage	2,000.00
Press Expense	1,000.00
Salaries	1,300.00
Residents and Interns Conference	250.00
Miscellaneous Expense	145.00
TOTAL MCI EXPENSES	$ 13,395.00

THE JOURNAL

INCOME:	
Allocation from Dues	$ 17,250.00
Subscriptions—Non-members	900.00
Advertising Sales	110,000.00
Reprint and Cut Sales	4,700.00
TOTAL JOURNAL INCOME	$132,850.00
EXPENSES:	
Editor's Expense	3,000.00
Printing, Mailing and Postage	80,000.00
Reprint and Cut Expense	3,300.00
Salaries	16,700.00
Discounts and Commissions, Advertisement Sales	24,000.00
Miscellaneous Expenses	100.00
TOTAL JOURNAL EXPENSES	$127,100.00
GAIN OR LOSS FOR THE YEAR (G)	5,750.00

PUBLIC EDUCATION RESERVE

INCOME:	
Allocation from Membership Dues	—0—
Balance from Prior Years	$ 35,000.00
TOTAL PUBLIC EDUCATION RESERVE	$ 35,000.00

PUBLIC EDUCATION ACCOUNT

INCOME:	
Allocation from Membership Dues	$ 53,187.50
Other Income	150.00
From P.E. Reserve (Auth. by Council)	1,000.00
TOTAL PUBLIC EDUCATION INCOME	$ 54,337.50
EXPENSE:	
Committee Meetings	$ 200.00
Equipment and Repairs	5,000.00
Printing, Mailing and Postage	4,000.00
Office Supplies	2,200.00
Salaries	27,500.00
Telephone and Telegraph	1,500.00
Travel and Expenses	5,000.00
Exhibit Expense	2,800.00
Publications, Pamphlets, Clippings	1,500.00
Radio, TV and Cinema	3,000.00
Miscellaneous Expenses	500.00
Library	500.00
Michigan Association of Professions	550.00
Campaign for Freedom	1,000.00
TOTAL PUBLIC EDUCATION EXPENSE	$ 55,250.00
GAIN OR LOSS FOR THE YEAR (L)	912.50

PUBLIC SERVICE ACCOUNT

INCOME:	
Allocation from Membership Dues	$ 25,875.00
EXPENSES:	
Salaries	$ 13,700.00
Telephone and Telegraph	2,000.00
Travel and Expenses	3,000.00
Rural Health Conference	500.00
Miscellaneous Meetings	2,000.00
New Headquarters Dedication	3,000.00
TOTAL PUBLIC SERVICE EXPENSE	$ 24,200.00
GAIN OR LOSS FOR THE YEAR (G)	1,675.00

PROFESSIONAL RELATIONS ACCOUNT

INCOME:	
Allocation from Membership Dues	$ 35,937.50
EXPENSES:	
Salaries	$ 18,700.00
Telephone and Telegraph	1,000.00
Travel and Expenses	3,000.00
Rent to Wayne County Medical Society	3,510.00
National Meeting Expense	2,000.00
County Secretary's—P.R. Conference	4,000.00
Woman's Auxiliary and Bulletin	1,600.00
Printing, Mailing and Postage	1,500.00
TOTAL PROFESSIONAL RELATIONS EXPENSE	$ 35,310.00
GAIN OR LOSS FOR THE YEAR (G)	627.50

Ingham Offers Spring Clinic

Seven scientific speakers plus a prominent California attorney will make presentations at the annual Spring Clinic of the Ingham County Medical Society at the Jack Tar Hotel, Lansing, April 6.

The program for the day-long meeting, formerly known as the May Clinic, will begin at 9:00 a.m. and conclude at 5:30 p.m. Arrangements are under the direction of David Siegel, M.D., and Jerome Cordes, M.D.

The lead-off speaker will be Robert L. Egan, M.D., University of Texas, on "Soft Tissue Roentgenography of the Breast." Alexander Brunschwig, M.D., Cornell University Medical College, will discuss "The Surgical Treatment of Cancer of the Cervix Including the Problem of Post Radiation Recurrences," and Wolf W. Zuelzer, M.D., Detroit, will speak on "Pediatrics."

Melvin M. Belli, attorney with law offices in Rome, Tokyo and San Francisco, will speak at the subscription luncheon on the legal aspects of medical practice.

The afternoon program beginning at 2:15 p.m., features four scientific speakers: Douglas M. Haynes, M.D., University of Louisville School of Medicine, on "Cesarean Section: Indications and Contraindications;" Isidore Snapper, M.D., Beth-El Hospital, Brooklyn, on "Diagnostic Clues;" George E. Moore, M.D., Roswell Park Memorial Institute, Buffalo, on "Cancer Chemotherapy: Implications for Physicians and Surgeons," and R. G. Bunge, M.D., University of Iowa College of Medicine, on "Sex Determination."

Refilling Prescriptions

Dear Doctor:

I have your inquiry, which is phrased as follows:

"Who would be liable should anything go wrong when a druggist refills a prescription without a doctor's knowledge or consent? This has happened twice recently with me and with medicines that we are cautioned to follow closely."

In considering the possible liability of the physician arising out of the refilling of prescriptions, it is all important, of course, to consider the nature of the prescription involved. I believe it safe to say that physicians' prescriptions generally fall into one of three classes.

First, those in which drugs are prescribed which cannot be legally dispensed by the pharmacist except upon a physician's prescription (notably narcotics for example). Here the pharmacist is prevented by law from refilling such prescription and if he does so in violation of the law, the physician cannot be held responsible.

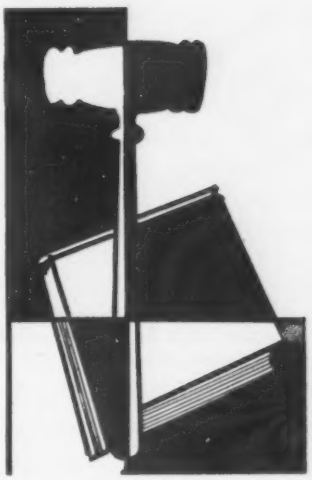
Second, those, at the opposite extreme, in which drugs or medicines of a known harmless nature are prescribed and in relation to which there could be no reasonable expectation of harm resulting from continued use or refilling of the prescription. Ordinarily the drugs prescribed in this type of prescriptions are such as may be dispensed by the pharmacist without prescription and there is, therefore, little likelihood of trouble following.

Third, those in which drugs are prescribed which are of such nature that their continued use or use under conditions uncontrolled or unsupervised by the physician may be dangerous, but which, nevertheless, may be legally (if not ethically) dispensed by the druggist without a new prescription.

In issuing this type of prescription, I think the physician would be well advised to note upon it by appropriate language that the prescription is not to be refilled. I do not say categorically that a physician would become liable if he fails to do this but I can see definite possibilities of liability under certain circumstances if he fails to do so.

It is well grounded in the law that the physician has a duty to warn his patient of the dangers involved in the use of certain drugs or treatments and while this duty would ordinarily be complied with by direct warnings or instructions to his patient, it seems to me that the doctor is in a much better position to defend against a claimed breach of duty in this respect if he marks prescriptions "unrefillable" when such is indicated.

Sincerely yours,
LESTER P. DODD
Legal Counsel



MICHIGAN DEPARTMENT OF HEALTH

ALBERT E. HEUSTIS M.D., State Health Commissioner

Public Health and the "Presidents Program"

Public health services are among the ingredients in the MSMS "Presidents Program" to add five more good years to the lifetimes of Michigan people in the next five years. The public health contribution toward this admirable goal could be increased by strengthening the following services in 1961-62:

1. *Local Health Departments*—Improved financial support is needed for local health department services. In the past ten years, mounting demands have been made of local health departments but state financial aid actually has decreased from $320,000 to $315,000. In addition, approved local health departments should be established in the 14 counties still without them. They are: Berrien, Cass, Clinton, Gogebic, Gratiot, Huron, Ionia, Jackson, Lapeer, Livingston, Marquette, Montcalm, Tuscola, and Van Buren. The time has passed when any part of Michigan should be without the services of a well-organized, well-financed, and adequately staffed local health department.

2. *Early Detection of Diseases*—School vision screening programs currently reach only about one out of four children who should be tested and the hearing conservation program currently screens only one in three youngsters who should be checked. With an estimated 300,000 school children handicapped by an undiscovered vision defect and about 50,000 with some degree of hearing loss, cooperative screening efforts should be expanded. In addition, there is rapidly growing medical endorsement of screening programs for cervical cancer, which killed nearly 1,900 Michigan women in the past five years; for diabetes, which caused over 1,700 deaths last year; and for glaucoma, the second cause of blindness. Physicians, local health departments, voluntary agencies and the state health department have jointly developed highly successful projects to screen adults for these diseases. This effort should be rapidly expanded.

3. *Tuberculosis Care*—Use of newer medicines and surgery has reduced the average tuberculosis hospitalization period from two years in 1950 to ten months today. But with the reduced time in the hospital, home nursing and clinical follow-up of the patient becomes correspondingly more important. Without close follow-up supervision, the patient may not continue therapy which is needed to complete his recovery, or may have a resurgence of the disease. Local health departments need increased support for their work with physicians to provide the essential follow-up services for 3,500 TB patients home from the hospital.

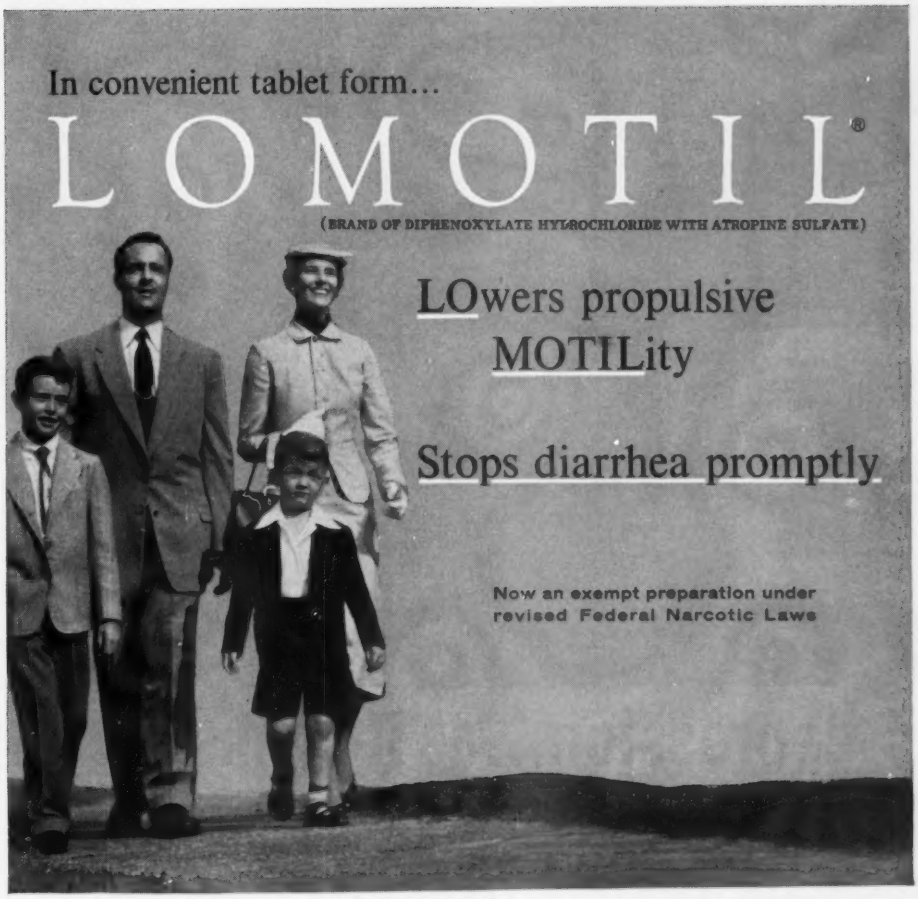
4. *Home Nursing Services*—While about three out of four Michigan people live in areas served by some type of home nursing services, this service is available to all of the residents of only 13 counties and to part of the residents of 10 additional counties. Very little home bedside nursing help is available in 60 counties of the state. Such services should be developed as rapidly as possible in the coming year to assist physicians in the care of patients with long-term illness; to take the pressure from overloaded hospitals; and to save money for patients, welfare agencies, and taxpayers.

5. *Food Sanitation*—Michigan's program to safeguard milk, meat, and other foods should be streamlined with emphasis on protecting the health of the consumer.

6. *Tooth Decay*—With Michigan people spending $75,000,000 annually on tooth decay, increased work is needed to encourage more communities to adjust the fluoride content of their water supplies. At present, while it has been proved that one part fluoride to one million parts of water will reduce tooth decay in children by about two-thirds, only one out of six Michigan people served by public water supplies has the benefits of fluoridation. Among other dental health needs is the lack of adequate dental care services for the old and needy, including patients in nursing homes and homes for the aged.

7. *Air Pollution*—With increasing evidence pointing to air pollution as a contributing factor in serious respiratory diseases, state legislation is needed to establish public health responsibility in this field.

Strengthening these public health services next year could help the MSMS Presidents Program "gain maximum benefit from the monumental gains of modern medical research. . . ."



Extensive clinical experience in the United States and Europe demonstrates that Lomotil provides prompt and positive symptomatic control of diarrhea.

Lomotil possesses a highly efficient antiperistaltic action. It controls diarrhea with few or none of the undesirable side effects of many other commonly used antiperistaltic agents.

In the control of diarrhea, Lomotil offers safety, efficacy and greater convenience.

DOSAGE: The recommended initial dosage for adults is two tablets (2.5 mg. each) three or four times daily, reduced to meet the requirements of each patient as soon as the diarrhea is under control. Maintenance dosage may be as low as two tablets daily. Lomotil, brand of diphenoxylate hydrochloride with atropine sulfate, is supplied as unscored, uncoated white tablets of 2.5 mg., each containing 0.025 mg. ($\frac{1}{2400}$ grain) of atropine sulfate to discourage deliberate overdosage.

Recommended dosage schedules should not be exceeded.

G. D. SEARLE & CO.
CHICAGO 80, ILLINOIS
Research in the Service of Medicine

You see an improvement within a few days
Thanks to your prompt treatment and the smooth action of Deprol, her depression is relieved and her anxiety and tension calmed – *often in a few days.* She eats well, sleeps well and soon returns to her normal activities.

Lifts depression...as it calms anxiety!

Smooth, balanced action lifts depression as it calms anxiety...rapidly and safely

Balances the mood – no "seesaw" effect of amphetamine-barbiturates and energizers. While amphetamines and energizers may stimulate the patient – *they often aggravate anxiety and tension.*

And although amphetamine-barbiturate combinations may counteract excessive stimulation – *they often deepen depression.*

In contrast to such "seesaw" effects, Deprol's smooth, *balanced* action lifts depression as it calms anxiety – both at the same time.

Acts swiftly – the patient often feels better, sleeps better, within a few days. Unlike the delayed action of most other antidepressant drugs, which may take two to six weeks to bring results, Deprol relieves the patient quickly –often within a few days. Thus, the expense to the patient of long-term drug therapy can be avoided.

Acts safely – no danger of liver damage. Deprol does not produce liver damage, hypotension, psychotic reactions or changes in sexual function–frequently reported with other antidepressant drugs.

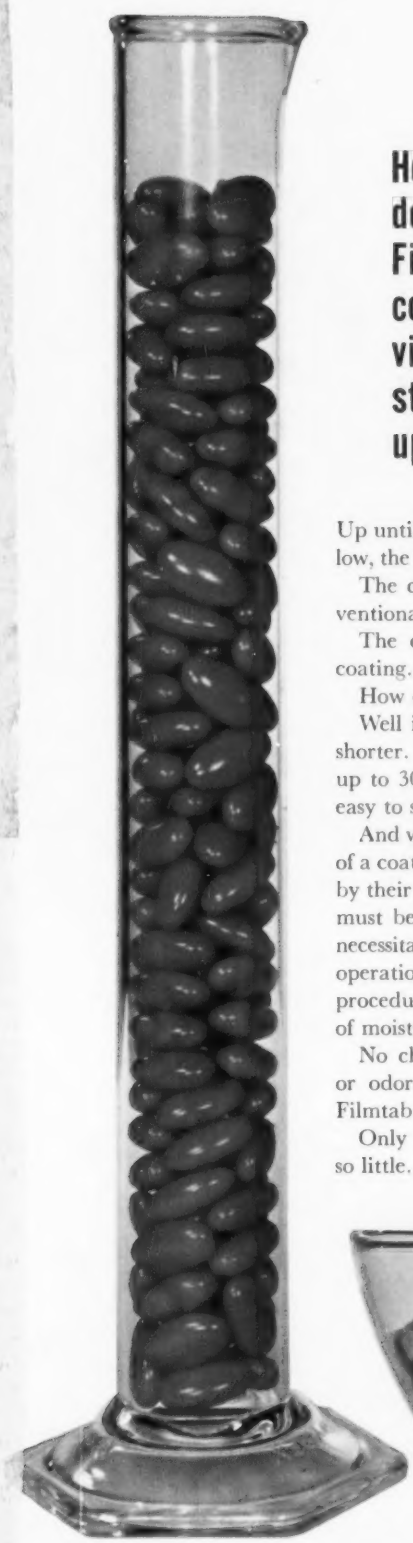
Dosage: Usual starting dose is 1 tablet q.i.d. When necessary, this dose may be gradually increased up to 3 tablets q.i.d.

Composition: 1 mg. 2-diethylaminoethyl benzilate hydrochloride (benactyzine HCl) and 400 mg. meprobamate. **Supplied:** Bottles of 50 light-pink, scored tablets. Write for literature and samples.

▲Deprol▲®

WALLACE LABORATORIES / *Cranbury, N. J.*

CD-2839



How do Filmtab® coated vitamins stack up?

Up until the moment we put the coatings on the Optilets® below, the tablets were all the same. Now, consider the differences.

The column on the left contains 125 Optilets with a conventional sugar coating.

The column on the right—125 Optilets with a Filmtab coating.

How do they stack up?

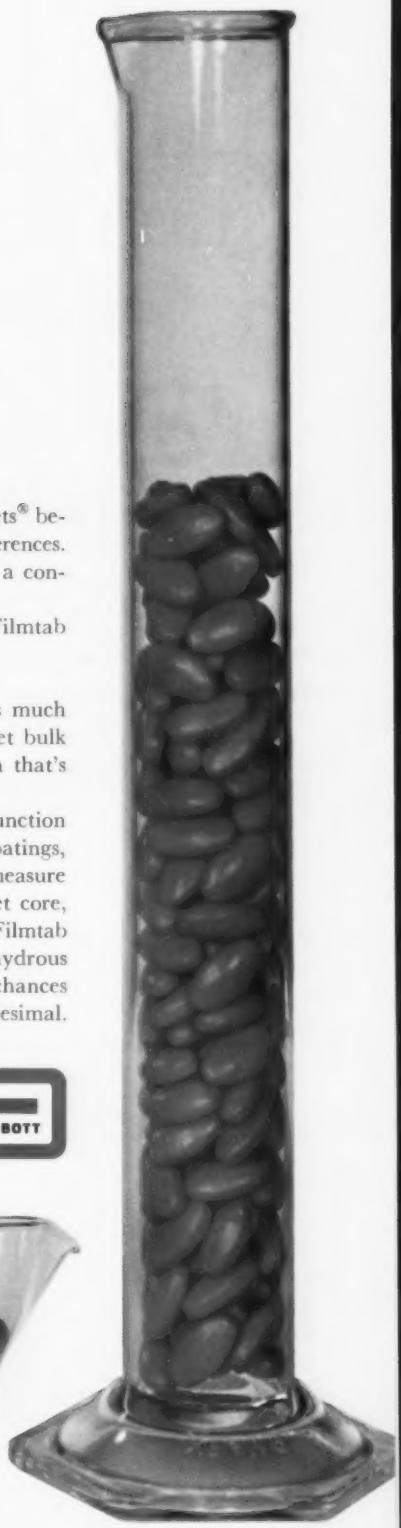
Well it's easy to see that the column on the right is much shorter. That's because the Filmtab coating cuts tablet bulk up to 30%. The result is a small, streamlined vitamin that's easy to swallow—the most compact tablet of its kind.

And when it comes to protecting potency (the main function of a coating), the Filmtab is in a class by itself. Sugar coatings, by their very nature, are aqueous solutions. Yet every measure must be taken to keep moisture out of the vital tablet core, necessitating "seal" coats which also increase bulk. The Filmtab operation, on the other hand, is essentially an anhydrous procedure. Seal coats are neither used nor needed. The chances of moisture being trapped inside the tablet are infinitesimal.

No chipping or breaking, no vitamin tastes or odors, no wasted vitamins—thanks to the Filmtab coating.

Only the Abbott Filmtab offers so much in so little.

ABBOTT



Filmtab—Film-sealed Tablets, Abbott.

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Abbott Vitamins Stay On the Table

...in attractive daily-reminder table-bottles

MAINTENANCE FORMULAS

DAYTEENS™ To help insure optiomal nutrition in growing teenagers

Each Filmtab® represents:

Vitamin A	(5000 units) 1.5 mg.
Vitamin D	(1000 units) 25 mcg.
Thiamine Mononitrate (B_1)	2 mg.
Riboflavin (B_2)	2 mg.
Nicotinamide	20 mg.
Pyridoxine Hydrochloride	0.5 mg.
Cobalamin (Vitamin B_{12})	2 mcg.
Calcium Pantothenate	5 mg.
Ascorbic Acid (C)	50 mg.
Iron (as sulfate)	10 mg.
Copper (as sulfate)	0.15 mg.
Iodine (as calcium iodate)	0.1 mg.
Manganese (as sulfate)	0.05 mg.
Magnesium (as oxide)	0.15 mg.
Calcium (as phosphate)	250 mg.
Phosphorus (as calcium phosphate)	193 mg.

In table bottles of 100, bottles of 250 & 1000

DAYALETS® Extra-potent maintenance formulas, ideal for the nutritionally "run-down"

Each Filmtab® represents:

Vitamin A	3 mg. (10,000 units)
Vitamin D	25 mcg. (1000 units)
Thiamine Mononitrate	5 mg.
Riboflavin	5 mg.
Nicotinamide	25 mg.
Pyridoxine Hydrochloride	2 mg.
Cobalamin (Vitamin B_{12})	2 mcg.
Calcium Pantothenate	5 mg.
Ascorbic Acid	100 mg.

In table bottles of 100, bottles of 50, 250 & 1000

DAYALETS-M® Each Filmtab represents all the vitamins of Dayalets plus the following:

Iron (as sulfate)	10 mg.
Copper (as sulfate)	1 mg.
Iodine (as calcium iodate)	0.15 mg.
Cobalt (as sulfate)	0.1 mg.
Manganese (as sulfate)	1 mg.
Magnesium (as oxide)	5 mg.
Zinc (as sulfate)	1.5 mg.
Molybdenum (as sodium molybdate)	0.2 mg.

In table bottles of 100 & 250, bottles of 1000

THERAPEUTIC FORMULAS

OPTILETS® Therapeutic formulas for more severe deficiencies—illness, infection, etc.

Each Filmtab® represents:

Vitamin A	7.5 mg.(25,000 units)
Vitamin D	25 mcg. (1000 units)
Thiamine Hydrochloride	10 mg.
Riboflavin	5 mg.
Nicotinamide	100 mg.
Pyridoxine Hydrochloride	5 mg.
Cobalamin (Vitamin B_{12})	6 mcg.
Calcium Pantothenate	20 mg.
Ascorbic Acid	200 mg.

In table bottles of 30 & 100, bottles of 1000

OPTILETS-M® Each Filmtab represents all the vitamins of Optilets plus the following:

Iron (as sulfate)	10 mg.
Copper (as sulfate)	1 mg.
Iodine (as calcium iodate)	0.15 mg.
Cobalt (as sulfate)	0.1 mg.
Manganese (as sulfate)	1 mg.
Magnesium (as oxide)	5 mg.
Zinc (as sulfate)	1.5 mg.
Molybdenum (as sodium molybdate)	0.2 mg.

In table bottles of 30 & 100, bottles of 1000

SUR-BEX® WITH C Therapeutic B-complex with C, for convalescence, stress, post-surgery.

Each Filmtab® represents:

Thiamine Mononitrate	6 mg.
Riboflavin	6 mg.
Nicotinamide	30 mg.
Pyridoxine Hydrochloride	2.5 mg.
Cobalamin (Vitamin B_{12})	2 mcg.
Calcium Pantothenate	10 mg.
Ascorbic Acid	150 mg.
Desiccated Liver, N.F.	150 mg.
Liver Fraction 2, N.F.	150 mg.
Brewer's Yeast Dried	150 mg.

In table bottles of 60, bottles of 100, 500 & 1000

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TABLE BOTTLES AT NO EXTRA COST

VITAMINS BY ABBOTT

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"...extraordinarily effective diuretic..."[1]

Efficacy and expanding clinical use are making Naturetin the diuretic of choice in edema and hypertension. It maintains a favorable urinary sodium-potassium excretion ratio, retains a balanced electrolyte pattern, and causes a relatively small increase in the urinary pH.[2] More potent than other diuretics, Naturetin usually provides 18-hour diuretic action with just a single 5 mg. tablet per day — economical, once-a-day dosage for the patient. Naturetin c̄ K — for added protection in those special conditions predisposing to hypokalemia and for patients on long-term therapy.

Supplied: Naturetin Tablets, 5 mg., scored, and 2.5 mg. Naturetin c̄ K (5 c̄ 500) Tablets, capsule-shaped, containing 5 mg. benzydroflumethiazide and 500 mg. potassium chloride. Naturetin c̄ K (2.5 c̄ 500) Tablets, capsule-shaped, containing 2.5 mg. benzydroflumethiazide and 500 mg. potassium chloride. For complete information consult package circular or write Professional Service Dept., Squibb, 745 Fifth Avenue, New York 22, N. Y.

References: 1. David, N. A.; Porter, G. A., and Gray, R. H.: Monographs on Therapy 5:60 (Feb.) 1960. 2. Ford, R. V.: Current Therap. Res. 2:92 (Mar.) 1960.

Naturetin Squibb Benzydroflumethiazide

Naturetin c̄ K Squibb Benzydroflumethiazide with Potassium Chloride

SQUIBB

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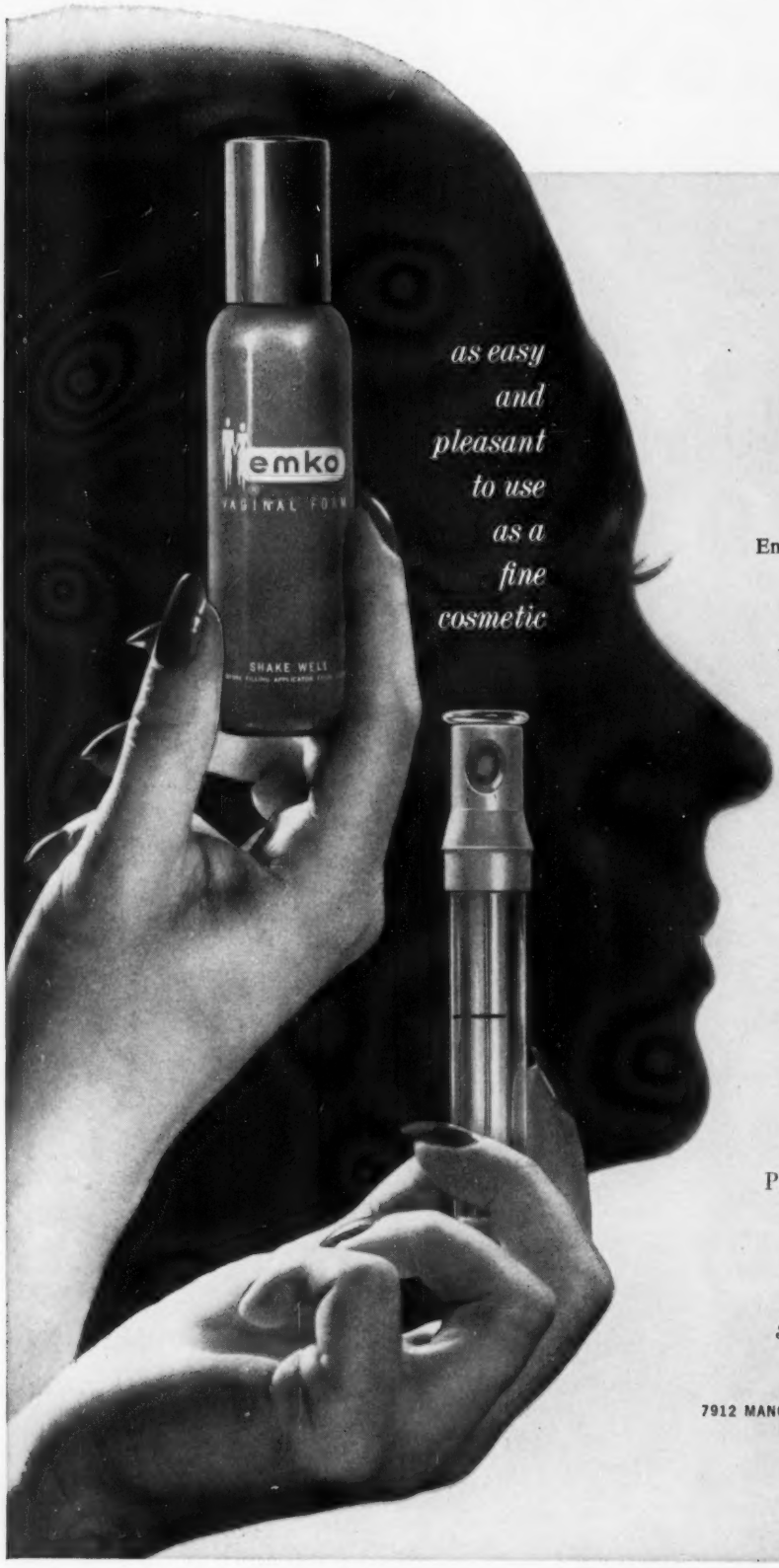

an *entirely*

as easy and pleasant to use as a fine cosmetic

with..

Emko Background

Emko is the result of a philanthropic research program established to seek a contraceptive that would prove effective in controlling birth rates of over-populated areas.

For that reason, it had to be effective under the most adverse conditions . . . acceptable to women of low motivation . . . entirely different from jellies, creams and other methods.

Emko Vaginal Foam was developed for use in Puerto Rico. This most successful experience led to the decision to make Emko available in other areas, including the United States.

NOW YOU CAN
PUT YOUR PATIENT'S MIND
AT EASE...WITH EMKO

stocked by local drug stores

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different approach to birth control

emko®

VAGINAL FOAM

PATS. PEND.

ACTIVE INGREDIENTS:
Nonyl phenoxy polyoxyethylene ethanol 8.0%
Benzethonium Chloride 0.2%

USING PRINCIPLES NEVER BEFORE APPLIED TO CONTRACEPTIVES

THE FIRST AEROSOL FOAM!

The volume of the material is expanded ten times to create a BLOCK OF FOAM.

THIS BLOCK SEALS THE CERVICAL OS.

Only a FOAM can successfully serve this diaphragm-like function . . . without interfering with normal intercourse or reducing sensory contact.

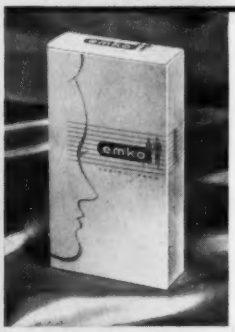
A HIGHLY EFFECTIVE SPERMICIDE

quickly renders the trapped sperm immotile.

EASIER TO USE THAN ANY OTHER EFFECTIVE CONTRACEPTIVE

The foam is placed with an entirely new type of "Touch Control" applicator. It's filled automatically by touching the open end to the top of the bottle.

- **No douching . . . it vanishes after use**
- **Absolutely no greasiness or "after-mess"**
- **No diaphragm . . . the foam does the blocking**
- **No irritation for husband or wife**



MARGARET SANGER RESEARCH BUREAU

INTERIM REPORT

In the Contraception Service of the Margaret Sanger Research Bureau, through October 31, 1960, Emko had been used from one to 22 months by 362 patients, with a total of 12 unplanned pregnancies. Seven of the pregnant patients admitted irregularity in the use of Emko.

Two planned pregnancies had also occurred after stopping the use of Emko.

A. J. SOBRERO, M.D. *Research Director*

EDITORIAL OPINION

An Ominous Coincidence

Battle Creek Enquirer and News, January 12, 1961

It was coincidence, of course, but the ominous effect of two developments in the matter of medical care coming on the same day cannot be ignored.

In Lansing, the Michigan Hospital Service asked for a 22.04 per cent rate increase and the Michigan Medical Service requested a 13.5 per cent raise. The proposed increases would cost the average family about $2.54 per month.

At the same time, President-elect Kennedy received a recommendation for a $1.4 billion federal-sponsored medical care program which would give help to those who generally need it the most—the aged. It is quite clear that if such a program is started, expansion is inevitable. Future years could well bring the condition which most medical men—and millions of other Americans—fear: socialized medicine.

Right now, there may be enough sentiment against federal medical care plans to either defeat them or to curtail their scope in Congress. But, one may be certain that if private insurance companies, such as the Michigan group, continue to ask and get rate increases, that opposition will crumble quickly.

The people simply will try to shift their burden to the government regardless of the fact that in the long run, they will pay for it anyway.

No one will deny that the Michigan groups must have more money if they are to continue operations as usual. But, therein may lie the problem. Is it necessary to continue operations as usual? Is it possible that the entire structure of Michigan Blue Cross and Blue Shield needs an overhaul? Is it possible, for example, that a more careful screening of patients, particularly the ones who are in hospitals repeatedly, is needed?

The Michigan medical care group seems to be heading for its own destruction unless the right answers can be found.

Constant rate increases by Michigan Blue Cross and Blue Shield are bound to impel people to look elsewhere for medical care insurance at lower premiums. And, they can be found in many large insurance companies. If there is a mass exodus of policy

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

JAMA

VOL. 174, NO. 5 OCTOBER 1, 1960

newest J.A.M.A. paper[1] reports

DBI

"oral therapy of choice" in management of diabetes . . . from the mild stable adult to the severe labile juvenile

holders from the Michigan group, the problem will be intensified further by the decline in operating funds.

When the Blue Cross-Blue Shield proposal is taken up in Lansing at a public hearing next month, a public furor may be expected. This would be the appropriate time for state Insurance Commissioner Blackford to delve into all of the problems besetting the Michigan group.

The people need Michigan Blue Cross and Blue Shield, but that need is mutual. Without subscribers, the companies cannot operate. But, a never-ending tide of rate increases can drive those subscribers to join other medical care plans or to do even worse—enthusiastically embrace a gigantic federal program.

Mirror, Mirror on the Wall

Detroit Medical News, December 12, 1960

Much newsprint has been consumed of late by both favorable and unfavorable comment about "the public image of the doctor." This observer is goaded into active challenge against the laments of public relation counselors and marketing research directors who invent nostrums for brightening medicine's tarnished halo. Once calmed, however, I become more than a little concerned by the multiplicity of the complaints against us as physicians. Allow me, then, one more exhortation.

Many of us have been disconcerted by having a patient tell us, "I like you personally, Doctor, but I don't care for the things organized medicine stands for." The viewpoint of most laymen is that our county, state and national associations are against most measures which would improve medical care. Our pronounced stands against hospital insurance, medical fee insurance and Social Security extension to care for the aging are misinterpreted. Our anxiety based on what has happened elsewhere to the quality of medical care under socialism is translated as greed and money mindedness.

We as individual physicians can bask in the personal knowledge of many grateful patients who after being brought back to health from serious illness are thankful. It is the "other fellow" which the public survey is chastizing. This attack on medicine in general raises our hackles to challenge but we do not take it as a personal problem. This is the first and greatest mistake!

It should not be implied that we do not owe the press a great debt in the proper reporting of medical progress which supplies a backdrop of dedication for our public image. Television drama adds to this allure

results of 104 "problem" diabetics treated with...

fair to excellent control in 91 of 104 diabetics (88%)
... achieved with DBI use alone or combined with exogenous insulin.

"more useful and certainly more serene lives"...
In many diabetics "phenformin (DBI) has been responsible for adjusting life situations so that patients whose livelihood was threatened, whose peace of mind was disturbed because of lability of their diseases, have been restored to more useful and certainly more serene lives."

"no evidence of toxicity" due to DBI...
a relatively low incidence of gastrointestinal reactions... were found in this series.

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DBI (brand of Phenformin HCl-N[1]–β-phenethylbiguanide HCl) is available as 25 mg. white, scored tablets, bottles of 100 and 1000.

1. Barclay, P. L.: J.A.M.A. 174:474, Oct. 1, 1960.

Rely on DBI, alone or with insulin, to enable a maximum number of diabetics to enjoy continued convenience and comfort of oral therapy in the satisfactory regulation of...

stable adult diabetes • sulfonylurea failures
unstable (brittle) diabetes

NOTE – before prescribing DBI the physician should be thoroughly familiar with general directions for its use, indications, dosage, possible side effects, precautions and contraindications, etc. Write for complete detailed literature.

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The most significant advance in analgesics since the isolation of morphine in 1805

Remarkable effectiveness and greater freedom from side reactions in the widest range of clinical applications

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NUMORPHAN®

BRAND OF OXYMORPHONE, ENDO

"A NEW ERA IN PAIN RELIEF"

clinically tested for 5 years/evaluated in 120 U. S. hospitals/over a quarter of a million doses given/more than 25,000 patients treated

SUPPLIED:

Vials: 10 cc., singly and in boxes of three.
Ampuls: 1 cc. and 2 cc., in boxes of 12 and 100.
(Each cc. of NUMORPHAN® contains 1.5 mg. oxymorphone as the hydrochloride.)
Suppositories: 2 mg. and 5 mg., in boxes of 6.

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by fairy-tale romances. These growing pictures may be less than pretty in the house organs of other agencies however, that wish to discredit medicine for selfish purposes.

The hard fact, however, is that with all of these multiple approaches of communication too often our objective manner to socio-economic problems is interpreted as reactionary. Our remoteness and lack of personal involvement with our patients has contributed to our unfavorable reflection in the public eye. It is not the "other fellow" all of the time at whom the survey is pointing the finger! It is not the job of *only* your county, state or national society to redefine the medical brand image to which the public will react. It must also be an individual endeavor to convince those "other people" that medicine really stands for something.

Collectively, we are for measures that will insure the public better health care. Individually, we must convince the public of this. Don't let John do it! We cannot delegate our public relations to any receptionist or psychologist. Each of us has an image. What you do in your relations with your patients, but *more especially with my patients* has more to do with what the public thinks of us than anything else. The resultant representation will play a key role in the future course of political and public behavior involving the medical profession.

DONALD N. SWEENY, JR.

Hail—But Heartily

Oakland County Medical Society Bulletin,
Vol. XXXV, No. 2

I am distressed and chagrined by the paucity of my acquaintance with the membership of the society. I believe I have been as active in hospital staff and committee society activities as the average physician. I suspect I have attended society functions as often, and certainly somewhat longer, than the average member.

Despite this, I can not claim to recognize by name and face, nor to have had personal conversation with, more than six out of ten of my colleagues. I do not believe this is due to any innate shyness, taciturnity or aloofness on my part. I can only conclude that there is something lacking in our contacts with one another. Obviously, one can not go about introducing himself to everyone as if he were a candidate for a political office. It seems to me that the more effective way would be to have someone introduce the strangers in the group or meeting. I feel the society is failing in this respect.

(Continued on Page 392)

Put your low-back patient back on the payroll

Soma relieves stiffness —stops pain, too

YOUR CONCERN: Rapid relief from pain for your patient. Get him back to his normal activity, fast!

HOW SOMA HELPS: Soma provides direct pain relief while it relaxes muscle spasm.

YOUR RESULTS: With pain relieved, stiffness gone, your patient is soon restored to full activity—often in days instead of weeks.

Kestler reports in controlled study: *Average time for restoring patients to full activity: with Soma, 11.5 days; without Soma, 41 days.* (*J.A.M.A. Vol. 172, No. 18, April 30, 1960.*)

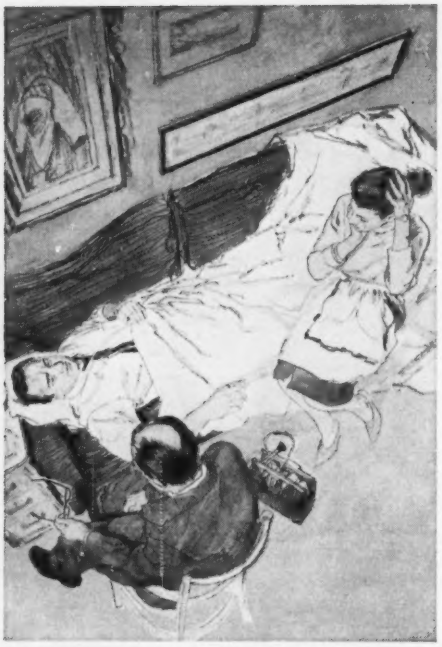
Soma is notably safe. Side effects are rare. Drowsiness may occur, but usually only in higher dosages. Soma is available in 350 mg. tablets. **USUAL DOSAGE: 1 TABLET Q.I.D.**

The muscle relaxant with an independent pain-relieving action

SOMA®

(carisoprodol, Wallace)

Wallace Laboratories, Cranbury, New Jersey



DORNWAL® HAS BEEN CALLED "THE GENERAL TRANQUILIZER FOR GENERAL PRACTICE."

Suppose the physician visiting this patient finds that he has to be hospitalized. Certainly he wants an alert but not excited fellow who can respond to the history and physical on admission. Depending on the condition, of course, the thing to do is to give the patient one or two tablets of Dornwal before he ever leaves his home.

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Since every man in general practice encounters such situations almost daily, it makes good sense to keep some tablets in one's bag, doesn't it? We will be glad to send you a supply.

Dosage: One or two 200 mg. tablets three times a day. Children, age 6 to 16, one or two 100 mg. tablets two times a day. Administration limited to three months' duration.

Supplied: 200 mg. yellow scored tablets, and 100 mg. pink tablets, each in bottles of 100 and 500.

P.S. For the "Genericist", Dornwal is amphenidone

No absolute contraindications to the use of Dornwal are known. There have been no reports or evidence of habituation, addiction or drug tolerance in animal or clinical studies. Dornwal is relatively free from untoward effects when administered at recommended dosages.

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Maltbie

PDW-12

Hail—But Heartily

(Continued from Page 390)

If every opportunity were utilized to present the various members in person by name, residence and specialty, one would have some knowledge upon which, at least, a speaking acquaintance could be founded. Undoubtedly, many of these would grow in time into friendships. If we open the door to better acquaintance, we close the way to dislike, distrust, disbelief and disharmony. We should not need a formal introduction. We belong to the same family. When we ignore, we offend; and none of us is so mighty that he can afford to squander the friendship of his fellows. If we but take the time for a friendly greeting, a few pleasantries or some stimulating conversation, we will come to know our colleague, to appreciate his abilities and to be more understanding of his faults.

There is no reason why there should be any feeling of envy, competition, strangeness or inferiority among our members in these days when there is such a shortage of trained purveyors of medical service. The economic success of a practice depends only upon the number of hours one is willing to make himself available to the people. Rivalry is stimulating to scientific achievement but it has no place in the personal relationship between men of mutual interest. It is a measure of the smallness of stature of the participant.

Let us prevent any division in our ranks along lines of specialty, staff membership or geographic location. We need each other. The society needs all of us. All together, we are the Oakland County Medical Society.

CHAUNCEY G. BURKE, M.D.,
President

Synthetic Skin

Encouraging results with a synthetic skin are reported from the Buffalo, N. Y., Veterans Administration hospital.

Aim of the research is to save the lives of persons who suffer massive burns, said William M. Chardack, M.D., who heads the project.

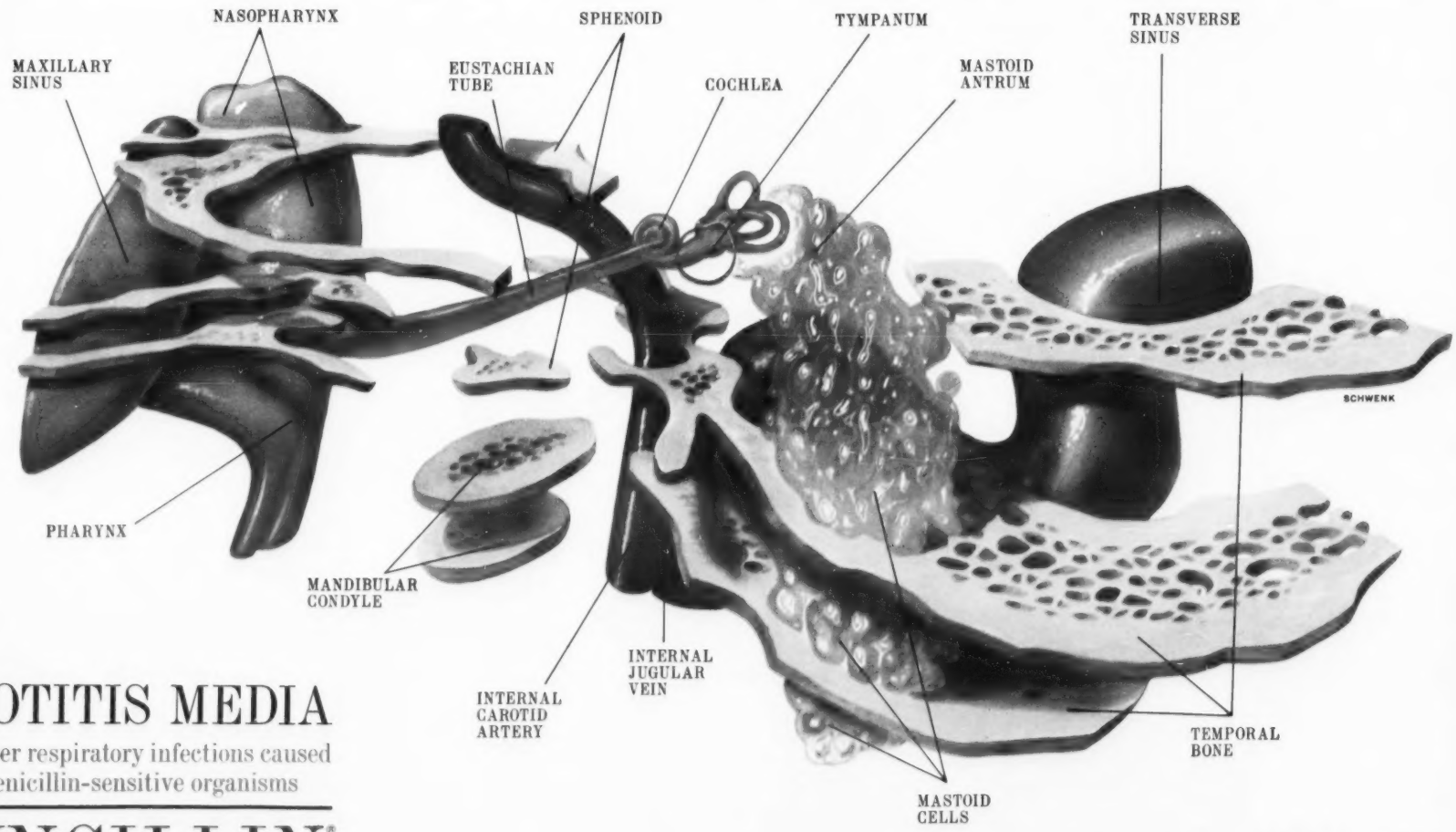
The material used is a combination of polyvinyl sponge and silicone rubber, which is rigid when dry but becomes soft, pliable and elastic when moist.

These synthetic skin grafts used in animals, have been maintained for periods up to 104 days. As the graft "takes," the surgical sponge is permeated by tissue, and firm adherence can be obtained within a few days. The skin substitute can be made waterproof by application of a coating of silicone rubber.

Dr. Chardack emphasizes that the skin prosthesis is not permanent, but they believe the material may provide a satisfactory temporary cover for tissue of burn victims that will enable these patients to improve sufficiently for staged coverage of the burned areas by successive small grafts from their own remaining uninvolved skin.

Say you saw it in the Journal of the Michigan State Medical Society

(TEAR ALONG DOTTED LINE)



This diagram represents the lateral aspect of the left middle ear and related structures. The bony landmarks are shown in serial sections.

IN OTITIS MEDIA

and upper respiratory infections caused by penicillin-sensitive organisms

SYNCILLIN®

(phenoxyethyl penicillin potassium)

for your next case in which penicillin is indicated . . .

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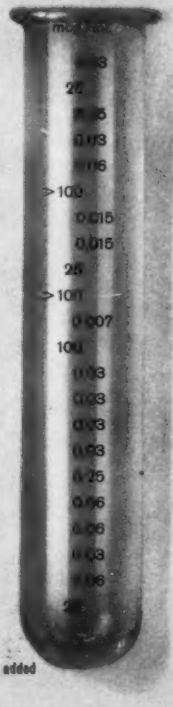
Effective in vitro antibacterial activity against penicillin-sensitive organisms*

Bacillus anthracis	
Bacillus cereus	25
Bacillus circulans ATCC 9961	
Corynebacterium xerosis	
*Diplococcus pneumoniae	
Escherichia coli ATCC 8739	>100
Gaffkya tetragena	
Micrococcus flavus	
Salmonella paratyphi A	25
Salmonella typhosa	>100
Sarcina lutea ATCC 10054	
Shigella sonnei	100
Staphylococcus aureus 209P	
Staphylococcus aureus var. Smith	
Streptococcus agalactiae ATCC 1077	
Streptococcus dysgalactiae ATCC 9926	
Streptococcus faecalis PCI 1305	
*Streptococcus pyogenes 203	
*Streptococcus pyogenes Digonnet	
Streptococcus pyogenes 2320	
Streptococcus pyogenes 23586	
Vibrio comma	



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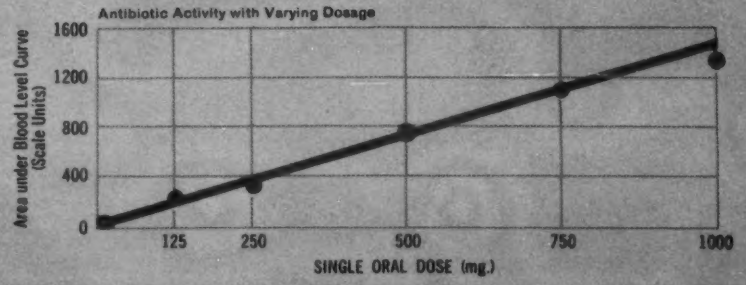
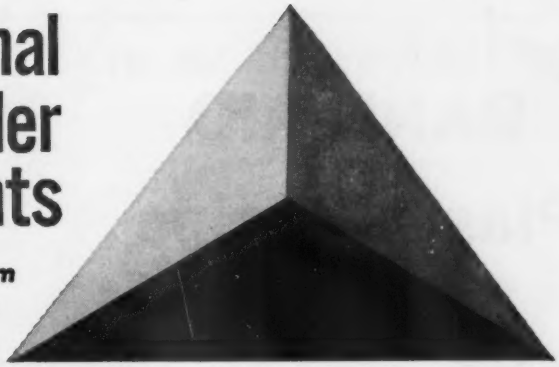


*As is true with all antibiotics, clinical response does not always correlate exactly with in vitro bacterial sensitivity reports or laboratory blood level findings. However, these are useful guides.

Dosage: 125 mg. or 250 mg. 3 times a day, depending on severity of the infection, and on age and weight of the patient. Larger dosage (e.g., 500 mg. t.i.d.) may be used for more severe infections. Although maximum absorption is obtained in the fasting patient, clinically adequate blood levels are almost always obtained when SYNCILLIN is administered with meals. Treatment should be continued until physician is confident infection has been overcome. □ Beta-hemolytic streptococcal infections should be treated for at least 10 days to help prevent the development of rheumatic fever. Even more prolonged therapy may be required for certain staphylococcal infections. □ Complete information on indications and precautions is included in the official circular accompanying each package.

3-dimensional support for older patients



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IN MEMORIAM

THOMAS T. CALLAGHAN, M.D., sixty, Detroit surgeon, died January 13, 1961.

A native of Richwood, West Virginia, Doctor Callaghan had lived in Detroit 30 years.

He was a graduate of Johns Hopkins University and the University of West Virginia. Doctor Callaghan was former chief of surgery and chief of staff at Crittenton Hospital. During World War II he served in Africa and Italy with the 17th General Hospital.

Doctor Callaghan was a member of Phi Beta Kappa, Detroit Boat Club and medical organizations.

O. A. CAPANO, M.D., forty-eight, Detroit, chief of staff of Mt. Carmel Mercy Hospital since 1953, died January 3, 1961. A native of Rural Valley, Pennsylvania, Doctor Capano had lived in Detroit 23 years.

He was a graduate of the Loyola University Medical School in Chicago. He served his internship at Providence Hospital, Detroit, in 1937 and received his surgical training at Oakland County General Hospital. During World War II he served in the Navy, leaving the service in 1946 with the rank of Lieutenant.

FREDERICK EVANS GRANT, M.D., ninety-two, retired Kalamazoo physician died January 13, 1961.

Born in London, England, Doctor Grant was graduated from Toronto University in 1893. Later he took postgraduate work in Vienna and London and moved to Kalamazoo in 1908.

His professional affiliations included the American Academy of Ophthalmology and Otolaryngology of which he was a life member, the Michigan Triological Society and the Anglo-American Medical Association of which he was a life member.

In 1947, Doctor Grant received the Michigan State Medical Society's Fifty-Year Award.

He was active in Peninsular Commandery, Knights Templar, which organization presented him with a Fifty-Year membership certificate in 1956. He also was a member of Moslem Shrine of Detroit, Kiwanis Club, and First Presbyterian Church.

RICHARD W. McLAIN, M.D., Eighty-six, native of Williams County, Ohio, died January 6, 1961.

Doctor McLain, a physician and minister, held positions as Chaplain at the Jackson Prison and as psychiatrist at the Jackson and Ionia prisons.

JAMES EDWARD MUNRO, M.D., Eighty-one, retired Jackson physician, died January 17, 1961.

Doctor Munro was born in St. Thomas, Ontario. In 1902 he was graduated from the Saginaw Valley Medical College in Saginaw and came to Jackson where he practiced until retiring several years ago.

In 1953, he was honored with Fifty-Year Award from the Michigan State Medical Society.

Doctor Munro, for many years, was active in the old Grass Lake Rifle Club and recognized as an expert marksman.

(Continued on Page 398)

Say you saw it in the Journal of the Michigan State Medical Society

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Welch Allyn Otoscope-Ophthalmoscope Set No. 983, complete with Sandura Case.

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(Continued from Page 396)

EMIL D. ROTHMAN, M.D., sixty, chief of obstetrics and gynecology at Sinai Hospital, Detroit, died January 3, 1961.

A resident of the Detroit area for 40 years, Doctor Rothman was born in New York City, and was graduated from the Detroit College of Medicine and Surgery in 1921. After internship at City Hospital, New York, he opened practice in Detroit in 1923.

He was a former president of the staff and chief of obstetrics at Highland Park General Hospital, a charter member of the College of Obstetrics and Gynecology, past grand counsellor of the Phi Delta Epsilon national medical fraternity, member of its executive board and editor of its bulletin. He was a member of the Maimonides medical organization, a founding member of the Detroit Historical Museum and a member of Temple Beth El, Detroit.

CHARLES L. WASHBURNE, M.D., Eighty-three, Ann Arbor, retired chief of staff at St. Joseph Mercy Hospital and former member of the University of Michigan Medical School faculty, died January 8, 1961.

He was a native of Ithaca, New York. A 1908 graduate of the U-M Medical School, Doctor Washburne was instrumental in helping start the orthopedics department at University Hospital and the U-M Health Service for students.

Appointed an intern at University Hospital in 1908, he progressed to the position of assistant professor of orthopedic surgery in 1918. In 1917 he was granted a leave of absence for military duty during World War I. He became head surgeon and chief of staff at St. Joseph Mercy hospital and joined the hospital's staff in 1914, retiring in 1953 after 39 years of service.

Doctor Washburne was formerly active in Masonic lodges.

COMMUNICATIONS

Wilfrid Haughey, M.D., Editor,
Journal of the Michigan State Medical Society
Battle Creek, Michigan

E. R. Squibb & Sons announced today a proposal which will provide a ten per cent allowance to those states which reimburse retail pharmacies directly for prescriptions for Squibb Products filled by pharmacies for state welfare patients.

J. SHANNON, E. R. Squibb & Sons

Telegram New York, N. Y.
February 6, 1961

Nursing Home Needs

Although there are nearly 14,000 licensed nursing homes and another 10,000 bed-and-board homes operating throughout fifty states, these provide only about 450,000 beds, one for every four aged or infirm people. In order to provide one skilled nursing home bed for every four elderly people by 1975, over 1,000,000 new beds and facilities will have to be constructed at a cost of more than 5 billion dollars.

A major step toward solution of this problem will come from the new 11 million dollar Nursing Home Research Center due for construction in Washington, D. C., in 1961.

Brief and to the Point

NEW DRUGS REPORT—The nation's smaller pharmaceutical manufacturers led the drug industry to a record breaking number of new pharmaceutical introductions during 1960, in spite of a drop in the rate of new products marketed by the major manufacturers. A total of 718 new pharmaceuticals was reported during 1960, representing an average of 3.1 products each from the 232 manufacturers announcing new items. This is slightly higher than the 1959 average of 2.7 products. The reports include the new pharmaceuticals of all national and regional American manufacturers. Pacing the increase were the 170 firms with less than full national distribution for their products. These companies increased their average rate of introduction to 3 items per firm in 1960 as compared with 2.3 products each in 1959.

* * *

MAJOR MEDICAL REPORT—Half of the group health insurance policies issued during 1960 provided a comprehensive or supplementary type of major medical expense insurance coverage. Of some 2,200 new group coverages issued last year (protecting 305,309 employees and an estimated 692,200 dependents for a total of almost one million insured individuals), 611 provided major medical benefits as a supplement to basic coverages already held by the insured, and 492 were comprehensive policies combining major medical benefits with basic coverages.

* * *

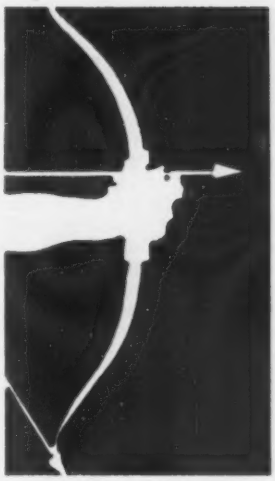
OFFER AAMA PROCEEDINGS—A compilation of speeches on medical office management and patient relations given at the annual convention of the American Association of Medical Assistants in Dallas is now available on request. The proceedings, entitled "The Challenge of the '60s," have been processed through the courtesy of Lakeside Laboratories, Inc., 1707 East North Avenue, Milwaukee 1, Wisconsin.

* * *

CANCER RESEARCH—A report by the University of Michigan Cancer Research Institute shows that U-M scientists are conducting 128 separate research projects on the problems of cancer.

The studies cover subjects ranging from fundamental physical and chemical principles to the highly complex effects of modern clinical treatment.

Many of the investigations seek new knowledge of normal growth, while other studies attempt to find variations among different kinds of cancer, the effects of hormones, and anti-cancer compounds and the clinical value of radiation.



DORNWAL® IS THE TRANQUILIZER VERSATILE ENOUGH TO BE USED ALMOST ANYWHERE.

Take, for instance, the woman in our picture, suffering from a really severe tension headache. Aspirin she has tried, of course; but suppose she's called you and you prescribed Dornwal. What would you expect?

First, let us say you told the druggist to indicate the dosage that our clinical research has shown is useful in these cases — 1 or 2 tablets t.i.d. In all probability, she would experience relief of pain and a general relaxation in less than an hour. If she is doing her housework, she could go on with it, because she wouldn't get sleepy.

Dornwal is one tranquilizer that doesn't make people sleepy. It's a tranquilizer pure and simple. Its effectiveness you will see clearly the next time you encounter a patient given to tension headaches. Try Dornwal and see the results.

Dosage: One or two 200 mg. tablets three times a day. Children, age 6 to 16, one or two 100 mg. tablets two times a day. Administration limited to three months' duration.

Supplied: 200 mg. yellow scored tablets, and 100 mg. pink tablets, each in bottles of 100 and 500.

P.S. For the "Genericist", Dornwal is amphenidone

No absolute contraindications to the use of Dornwal are known. There have been no reports or evidence of habituation, addiction or drug tolerance in animal or clinical studies. Dornwal is relatively free from untoward effects when administered at recommended dosages.

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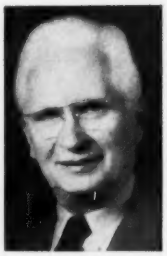


DR. CARR HONORED—E. I Carr, M.D., Lansing, received the Ingham County Medical Society "Doctor of the Year" award at the annual meeting in January. The award, presented by F. I. Troost, M.D., Holt, a past president of the Ingham society, cited Dr. Carr for his many contributions of time, effort and leadership to Society projects.

* * *

GRANTS AID WAYNE—The Wayne State University Board of Governors recently received grants of $244,615 for 11 projects from the U. S. Public Health Service, National Institutes of Health.

The largest of the 11 projects was $51,689 for a training program in physiology, to be conducted under the direction of Edward L. Holmes, M.D., for the 18-month period.

Other grants were $42,089 for a training program in microbiology; $32,902 for research entitled "Fluorine: Effect of Dentition When Given from Infancy," $20,039 for research entitled "Physiology of the Vagus," and $19,550 to continue research entitled "Formation and Properties of Prothrombin Derivatives."

* * *

MSMS ARCHITECT CITED—Minoru Yamasaki, Birmingham, architect of the new headquarters of the Michigan State Medical Society among many outstanding buildings, received a doctor of architecture degree at the University of Michigan mid-year graduation exercises in January.

* * *

INVITATION TO WINDSOR—The Annual Essex County Surgical Clinic, sponsored by the Essex County Medical Society, will be held in Windsor, Ontario, April 26, 27 and 28 in the new Cleary Auditorium.

The guest speakers will be Professor Ian Aird of London University, and Professor Robert M. Zollinger of Ohio State University. This meeting is cosponsored by the Surgical Division of the Ontario Medical Association.

For further information, write: The Registrar, Essex County Surgical Clinic, 301 Canada Building, Windsor, Ontario.

* * *

OFFER AGING BIBLIOGRAPHY—The National Library of Medicine has just issued a bibliography on Physiologic Involution in Normal Aging Man. Copies may be obtained at no cost upon request to the: Acquisition Section, National Library of Medicine, Washington 25, D. C.

* * *

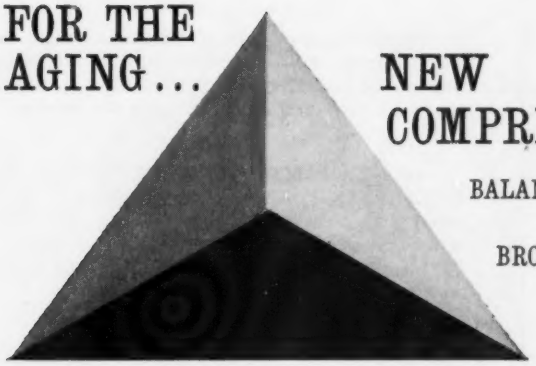
NAMED MEDICAL EXAMINERS—The medical examiner system has been launched in Barry County after its overwhelming approval by the voters in November. W. R. Birk, M.D., of Hastings, was appointed by the Barry County Board of Supervisors as the first county medical examiner. Three other doctors of medicine were named deputy medical examiners—Douglas Castleman, M.D., Robert Huebner, M.D., and Ray Finnie, M.D., all of Hastings.

* * *

MICHIGAN INDUSTRIAL MEDICAL ASSOCIATION—The Annual Meeting of the Michigan Industrial Medical Association is to be held March 24, 1961 at the Statler Hilton Hotel in Detroit. They extend an invitation to

(Continued on Page 402)

FOR THE AGING...



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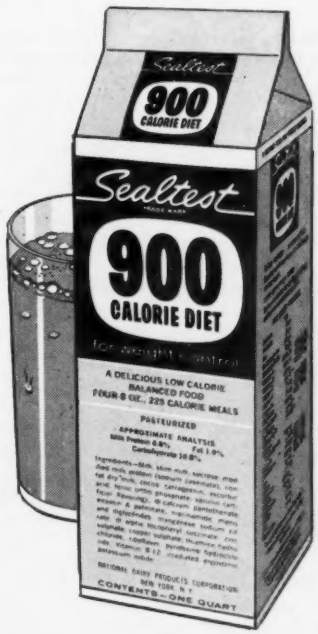

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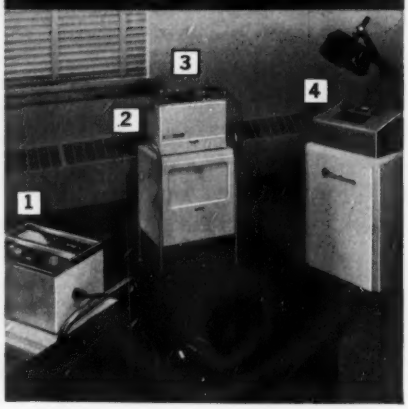

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(Continued from Page 400)

any interested members of the medical profession who might wish to attend. We have been informed by the Michigan Academy of General Practice that five hours Category II Credit will be granted for attendance at this meeting.

* * *

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY ANNOUNCES—the next scheduled examinations (Part II), oral and clinical for all candidates at the Edgewater Beach Hotel, Chicago, April 8 through 15. The deadline date for the receipt of new and reopened applications for the 1962 examinations is August 1.

* * *

EIGHTY-FIVE PRACTICING PHYSICIANS completed recent postgraduate courses in pediatrics, obstetrics and gynecology at The University of Michigan Medical Center. The week-long program, featuring U-M faculty members and guest lecturers, was geared to common problems arising in maternal and child care.

* * *

50TH ANNIVERSARY—As the Army Dental Service reaches its first half century mark in March, the watchword of the future is "Prevention." Major General Joseph L. Bernier, new chief of the Dental Corps, has launched a Corps-wide campaign to maintain the dental health of the Army at an all-time high.

"The loss of manhours due to dental causes constitutes a significant military problem," General Bernier says. "Men away from duty, even for a short time, may seriously interfere with operations and training in our present mechanized and specialized Army."

* * *

DOCTOR FALLS HONORED—A greatly expanded program of information to the public on the meaning and value of good eye care is planned for 1961 by the National Medical Foundation for Eye Care. The Foundation was organized in 1956 as a public educational agency for American ophthalmology, and most of its 3,000 members are Diplomates of the American Board of Ophthalmology.

The Foundation's Board of Trustees, at its recent Annual Meeting, re-elected Ralph O. Rychener, M.D., of Memphis as president for a fifth term. Harold F. Falls, M.D., of Ann Arbor, was elected chairman of the Executive Committee.

The Foundation's public information program has several main features: (1) a series of monographs on major socio-economic and organizational problems confronting ophthalmology. These are widely distributed to editors, publicists and other "opinion makers"; (2) a series of popular pamphlets on eye care topics, of which nearly 3,000,000 copies have been distributed during the past four years largely through physicians' offices; (3) an informational and advisory service for popular magazine editors and science writers; and (4) periodic stories and educational material for medical journals, newspapers and radio-TV outlets.

* * *

SPEAKER—Ralph S. Green, M.D., Rochester, delivered a paper on "The Adjunctive Therapies with Specific Considerations of Regressive Potentials," before the National

(Continued on Page 404)

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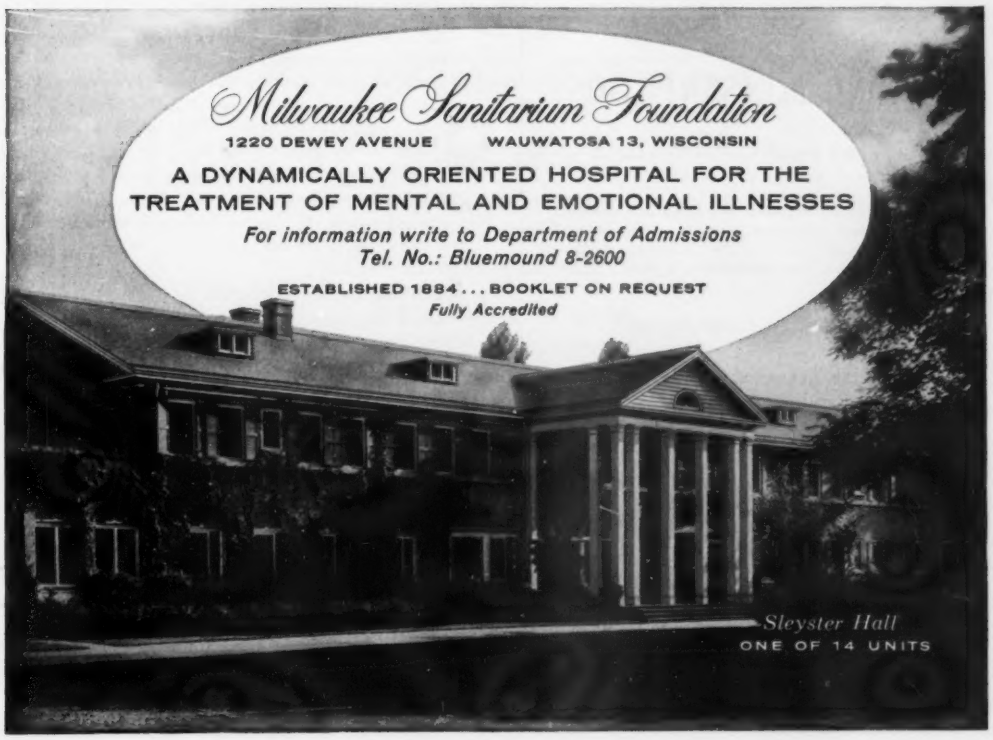
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(Continued from Page 402)

Association of Private Psychiatric Hospitals at the Phoenix annual meeting in January.

* * *

ANNOUNCE CAMP—The Summer Camp for Diabetic Children will be conducted for the thirteenth year by the Chicago Diabetes Association, July 16 through August 6, at Holiday Home, Lake Geneva, Wisconsin. Boys and girls from eight through fourteen years of age are eligible. Applications may be obtained from Chicago Diabetes Association, 620 North Michigan Avenue, Chicago 11, Illinois.

* * *

RECEIVES TRIBUTE—Robert Murray, M.D., Trenton, was cited recently for his efforts on behalf of the Red Cross blood program in the Downriver area.

In making the presentation, Mrs. Frederick C. Weyher, chairman of the chapter's field service, paid tribute to the service Dr. Murray gave in securing volunteer physicians to staff monthly visits of the Red Cross bloodmobile to the Downriver regional office. She said that since he and the Southeastern Medical Association accepted the assignment, Dr. Murray has been "on duty" four out of 17 times.

* * *

MEDICAL TELEVISION SHOWS—The Michigan Health Council reports that the following topics were covered during the month of January, 1961 on the weekly Sunday morning program over WJBK-TV, Detroit: Home Safety, School Health, Nutrition, and Heart Disease.

* * *

COOPERATIVE AGREEMENT—After operating under a verbal agreement for many years, Wayne County General Hospital and Wayne State University College of Medicine have signed a written affiliation agreement. Use of Wayne County General for clinical teaching purposes will continue to be shared with the University of Michigan Medical School. A joint administrative committee will be composed of representatives from Wayne County Board of County Institutions, Wayne County General Hospital and the two medical schools.

MEDICAL MEETINGS U.S.A.

Spring Meeting of American Academy of Pediatrics, April 10-12, 1961, Sheraton-Park Hotel, Washington, D. C. For information write E. H. Christopherson, M.D., 1801 Hinman Ave., Evanston, Ill., Executive Director.

Clinical Reviews, Mayo Clinic and Mayo Foundation, April 10-12, 1961, Rochester, Minnesota; for information contact Clinical Reviews Committee, Mayo Clinic, Rochester, Minnesota.

Ohio State Medical Association, April 10-13, 1961, Netherland-Hilton Hotel, Cincinnati, Ohio. Charles S. Nelson, 79 E. State St., Columbus 15, Executive Secretary.

Industrial Medical Association, April 11-13, 1961, Biltmore Hotel, Los Angeles, Calif. Clark D. Bridges, Managing Director, 28 E. Jackson Blvd., Chicago, Ill.

American Academy of General Practice, April 13-20, 1961, Miami Beach, Fla. Mac F. Cahal, Volker Blvd. at Brookside, Kansas City 12, Mo., Executive Director.

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Fifth Post-Graduate Course on Fractures and Other Trauma sponsored by the Chicago Committee on Trauma of the American College of Surgeons, April 19-22, 1961, John B. Murphy Memorial Auditorium, 50 East Erie Street, Chicago.

American College of Obstetricians and Gynecologists, April 21-28, 1961, Americana Hotel, Miami Beach, Fla. Donald F. Richardson, 79 W. Monroe St., Chicago 3, Ill., Executive Secretary.

Thirty-Second Annual Meeting of Aerospace Medical Association, April 24-26, 1961, Chicago. Willion J. Kennard, M.D., c/o Washington National Airport, Washington, D. C., Secretary-Treasurer.

American Association for Thoracic Surgery, April 24-26, 1961, Sheraton Hotel, Philadelphia, Pa. Hiram T. Langston, M.D., 308 Carondelet Bldg., 7730 Carondelet Ave., St. Louis 5, Secretary.

American Pediatric Society, May 2-3, 1961, Hotel Traymore, Atlantic City. Conrad M. Riley, Denver General Hospital, Denver 4, Secretary.

Student American Medical Association, Congress, May 3-7, 1961, Chicago. Russell F. Staudacher, 430 N. Michigan Ave., Chicago 11, Executive Director.

American Society of Internal Medicine, May 5-7, 1961, Eden Roc Hotel, Miami Beach, Fla. G. Tod Bates, 350 Post St., San Francisco 8, Executive Director.

American College of Physicians, May 8-12, 1961, Americana Hotel, Miami Beach, Fla. Edward C. Rosenow, Jr., M.D., 4200 Pine St., Philadelphia 4, Executive Director.

American Psychiatric Association, May 8-12, 1961, Morrison Hotel, Chicago. C. H. Hardin Branch, M.D., 156 Westminster Ave., Salt Lake City 15, Utah, Secretary.

International College of Surgeons, North American Federation Congress, May 15-18, 1961, Palmer House, Chicago. Horace E. Turner, M.D., 1516 Lake Shore Drive, Chicago, Secretary General.

Illinois State Medical Society, May 15-18, 1961. R. Richards, 360 N. Michigan, Chicago 1, Executive Administrator.

American College of Cardiology, Inc., May 16-20, 1961, Biltmore Hotel, Philip Reichert, M.D., 350 Fifth Ave., Empire State Bldg., New York 1, Executive Director.

American Association of Plastic Surgeons (members and guests), May 17-19, 1961, Commodore Hotel, New York City. Thomas D. Cronin, M.D., 6615 Travis St., Houston 25, Texas, Executive Secretary.

American Orthopaedic Association (members and guests), May 22-25, 1961, The Ahwahnee, Yosemite, Calif. Lee Ramsay Straub, M.D., 535 E. 70th St., New York 21, Secretary.

American Urological Association, Inc., May 22-25, 1961, Biltmore Hotel, Los Angeles. William P. Didusch, 1120 N. Charles St., Baltmore 1, Executive Secretary.

National Tuberculosis Association, May 22-25, 1961, Netherland-Hilton, Cincinnati. James G. Stone, 1790 Broadway, New York 19, Executive Secretary.

American Otological Society, Inc., May 26-27, 1961, Lake Placid Club, Essex County, N. Y. James A. Moore, M.D., 525 E. 68th St., New York 21, Secretary-Treasurer.

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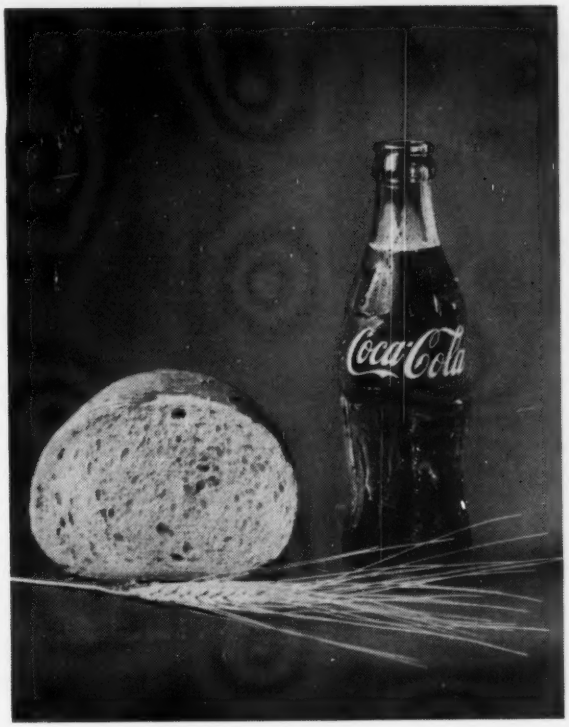

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American Gynecological Society, May 29-31, 1961, The Broadmoor, Colorado Springs, Colo. Albert H. Aldridge, M.D., 899 Park Ave., New York 21, President.

American Neurological Association, June 12-14, 1961, Hotel Claridge, Atlantic City. Melvin D. Yahr, M.D., Neurological Institute, 710 W. 168th St., New York 32, Executive Secretary.

American Dermatological Association, Inc. (members only), June 16-20, 1961, Castle Harbour Hotel, Tucker's Town, Bermuda. Wiley M. Sams, M.D., 25 S.E. Second Ave., Miami 32, Fla., Secretary.

American Proctologic Society (members and guests), June 21-24, 1961, Pittsburgh Hilton Hotel, Pittsburgh. Norman D. Nigro, M.D., 10 Peterboro St., Detroit, Secretary.

American Rheumatism Association, June 22-23, 1961, Hotel Roosevelt, New York City. Gerald W. Speyer, 10 Columbus Circle, New York 19, Executive Secretary.

American Geriatrics Society, June 22-23, 1961, New York City. Richard J. Kraemer, M.D., 2907 Post Rd., Greenwood, Warwick, R. I.

American College of Chest Physicians, June 22-26, 1961, Hotel Commodore, New York City. Murray Kornfeld, 112 E. Chestnut St., Chicago, Executive Director.

American Diabetes Association, Inc., June 24-25, 1961, Commodore Hotel, New York City. J. Richard Connelly, M.D., 1 E. 45th St., New York 17, Executive Secretary.

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GASTROENTEROLOGY MEETING—The Central Regional Meeting of the American College of Gastroenterology will be held in Milwaukee, Sunday afternoon, April 16. The scientific sessions will be held at the Schroeder Hotel at 2 p.m., following the semi-annual meeting of the College's Board of Trustees.

The Central Region includes Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota and Wisconsin.

A copy of the program may be obtained by writing to the Secretary, American College of Gastroenterology, 33 West 60th Street, New York 23, N. Y.

YALE PROFESSOR COMING—The Detroit Branch of the American Urological Association will meet Wednesday, May 17 at the David Whitney Building, Detroit to hear B. Marvin Harvard, Jr., M.D., professor of urology at Yale. The Association heard three speakers—Neil C. Carruthers, M.D., of Sarnia, Raymond C. Kinzel, M.D., of Lansing, and Chester C. Winter, M.D., of Columbus, Ohio—at its March 15 meeting at the David Whitney Building.

* * *

POSTGRADUATE COURSES—scheduled at the University of Michigan are: April 13-15, Allergy Conference; April 17-21, Endocrinology and Metabolism Conference; April 20-22, Otolaryngology Conference; April 24-26, Ophthalmology Conference.

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*Council on Drugs, J.A.M.A. 165:58 (Sept. 7) 1957.

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*Pomeranze, J.: J. New York M. Coll. *1*:32, 1959.

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1. Macy, I. G.; Kelly, H. J., and Sloan, R. E.: with the Consultation of the Committee on Maternal and Child Feeding of the Food and Nutrition Board, National Research Council: The Composition of Milks, Publication 254, National Academy of Sciences and National Research Council, Revised 1953. 2. Brown, G. W.; Tuholski, J. M.; Sauer, L. W.; Minsk, L. D., and Rosenstern, I.: Evaluation of Prepared Milks in Infant Nutrition; Use of the Latin Square Technique, J. Pediat. 56:391 (Mar.) 1960.

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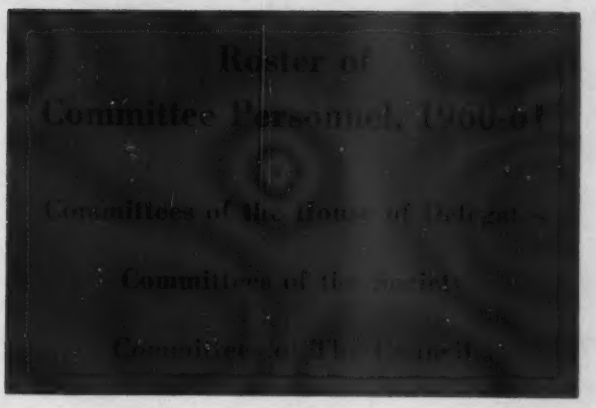

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